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Staff: SLB/CLK – SF
Staff Report: April 25, 2002
Hearing Date: May 9, 2002

STAFF REPORT – APPEAL
SUBSTANTIAL ISSUE

APPEAL NO.:	**A-2-02-09**
APPLICANTS:	**Point Reyes Affordable Housing, Inc.**
AGENT:	**Lamar Turner**
LOCAL GOVERNMENT:	**Marin County**
ACTION:	Approval with Conditions.
PROJECT LOCATION:	857 Mesa Road, Point Reyes Station, Marin County. APNS 119-240-45, -46, -57, and 58
PROJECT DESCRIPTION:	Subdivision of 18.6 acres into 13 lots, construction of 27 affordable rental apartment units, 7 for sale affordable single-family residences, and associated infrastructure, reservation of lots for future development of one market rate single-family residence with a guest unit and barn, a 20-room inn, public parking and a public restroom, and preservation of 2.58 acres of open space.
APPELLANTS:	Elena Belsky, Mark Warner, and Tomales Bay Association Commissioners Christina Desser and Mike Reilly
SUBSTANTIVE FILE DOCUMENTS:	Appendix A

STAFF NOTE

The local government action on the approved development included both the submittal of an amendment to the Marin County certified Local Coastal Program (LCP) to the Commission and approval of a coastal development permit (CDP). The LCP amendment is necessary because the approved development does not conform to the site's pre-LCP amendment zoning. The zoning change is required because the approved development's clustered design does not conform to the minimum lot-size and setback standards of the pre-amendment zoning. In order to be effective, the zoning change must be certified by the Commission as an amendment to the LCP. Because the County's final action approving the CDP for the project preceded Commission certification of the related LCP amendment, the approved development is on its face inconsistent with the certified LCP. This basic LCP consistency issue would be resolved if the Commission certifies the LCP amendment as submitted. As such, Marin County LCP Amendment 1-MAJ-02 is scheduled for Commission consideration and action prior to the hearing on this appeal. The following staff recommendation and findings concerning Appeal A-2-02-09 assumes prior Commission action certifying Marin County LCP Amendment 1-MAJ-02 as submitted consistent with the staff recommendation.

SUMMARY OF STAFF RECOMMENDATION

The appeal of Elena Belsky, Mark Warner, and Tomales Bay Association is filed on the grounds that the approved development is inconsistent with the policies of the certified Marin County LCP concerning protection of water quality, sensitive habitats, and human health from adverse impacts related to the approved septic systems and polluted runoff.

The County worked with the applicant, the staff of the San Francisco Bay Regional Water Quality Control Board (RWQCB), and the Commission's Water Quality Unit to respond to these issues. The County also hired a consultant to conduct a third party review of the engineering studies submitted by the applicant's and the appellants' consultants. As a result, the County modified its conditions of approval in accordance to the specific recommendations of the RWQCB staff to address the water quality issues raised by the appellants.

In particular, Condition 58 requires the applicant to monitor the septic systems to verify compliance with the system's engineering and ambient condition design criteria and to provide contingency measures such as pre-treatment or leach field modifications to correct any unexpected problems. In addition to requiring state-of-the-art storm water and erosion control best management practices, the County's conditions of approval require the approved storm water system to capture and treat on site 100 percent of the 100-year, 24-hour design storm event. This substantially exceeds the 85th percentile, 24-hour design storm requirement typically required by the Commission.

The Commission's Water Quality Unit has reviewed the information in the local record, including the appellants' and the applicant's consultant reports, the County's third party peer review, and correspondence from the RWQCB. The information reviewed by the Water Quality Unit supports the County's findings that the conditions of approval as modified are adequate to fully address any outstanding issues related to wastewater polluted runoff control and treatment. This determination is consistent with the determination of the staff of the RWQCB and the County's third party peer review. Therefore, the staff recommends the Commission find no

substantial issue is raised with respect to the grounds on which the appeal of Belsky, Warner and Tomales Bay Association is filed.

The local government action on the approved development included both the submittal of an amendment to the LCP to the Commission and approval of a CDP. The LCP amendment is a necessary precedent to the CDP because the approved development does not conform to the site's pre-LCP amendment zoning. The zoning change is required because the approved development's clustered design does not conform to the minimum lot-size and setback standards of the pre-amendment zoning. Because the County's final action approving the CDP for the project precedes Commission certification of the related LCP amendment, the approved development was at the time of the final local action inconsistent with the certified LCP. It is on this basis that Commissioners Desser and Reilly appealed the CDP.

Prior to its consideration of this appeal, the Commission certified Marin County LCP Amendment 1-MAJ-02 as submitted. As such, the above-cited zoning inconsistency is resolved and the approved development conforms to the currently effective certified LCP zoning designation for the project site. Therefore, the Commission finds that no substantial issue exists with respect to the grounds on which the appeal of Commissioners Desser and Reilly is filed.

1.0 STAFF RECOMMENDATION

No Substantial Issue

The staff recommends that the Commission determine that no substantial issue exists with respect to the grounds on which the appeal has been filed.

Motion

> *I move that the Commission determine that Appeal No. A-2-02-09 raises NO substantial issue with respect to the grounds on which the appeal has been filed under § 30603 of the Coastal Act.*

Staff Recommendation of No Substantial Issue

Staff recommends a **YES** vote. Passage of this motion will result in a finding of No Substantial Issue and adoption of the following resolution and findings. If the Commission finds No Substantial Issue, the Commission will not hear the application de novo and the local action will become final and effective. The motion passes only by an affirmative vote by a majority of the Commissioners present.

Resolution to Find No Substantial Issue

The Commission finds that Appeal No. A-2-02-09 does not present a substantial issue with respect to the grounds on which the appeal has been filed under § 30603 of the Coastal Act regarding consistency of the approved development by the County with the Certified Local Coastal Plan and/or the public access and recreation policies of the Coastal Act.

2.0 PROJECT SETTING AND SITE DESCRIPTION

2.1 Project Location and Site Description

The project site is located at 857 Mesa Road on an 18.59-acre undeveloped property on the northeast side of the unincorporated village of Point Reyes Station in Marin County (Exhibit 1).

The site is a moderately sloped hillside dominated by upland vegetation, primarily annual Mediterranean grassland. Three plant communities were identified at the site: seasonal freshwater wetland, grazed Mediterranean grasslands, and ornamental landscape planting. The site supports five small seasonal wetlands totaling approximately 0.25 acre (Exhibit 2). The seasonal wetlands are located in three distinct areas within the project site. The first area (approximately 3,003 square feet) is located on the western portion of the site. The largest wetland area (a complex of three wetlands totaling approximately 5,029 square feet) is located in the central portion of the site. A third, smaller wetland (approximately 2,924 square feet) is located centrally in the eastern portion of the site. Currently, horses graze the area of the wetlands. An abandoned house, corral, and associated out buildings surrounded by mature overgrown landscape and agricultural plantings are located on the southern entrance to the site. A cluster of bishop pines stands along the driveway opposite the house and a windrow of Monterey pines on the adjacent West Marin School site line the uphill boundary of the site. Commodore Webster Drive is planted with a row of Monterey cypress trees bordering the southeastern edge of the site. At present, the property is used as a grazed pastureland for horses. Lagunitas Creek, a tributary of Tomales Bay, is located approximately 400 feet from the southern property boundary (Exhibit 3). The project site is primarily separated from the creek by a line of ornamental trees, Commodore Webster Drive, open grassland, and riparian vegetations along the creek. There is a United States Coast Guard (USCG) housing complex located between the creek and the southeast corner of the project site.

The project site is one block north of A Street (Highway 1), the main downtown street of Point Reyes Station on Mesa Road. West Commodore Webster Drive borders the site on the southwest and southeast, respectively, and by vacant land on the east and northeast. Surrounding land uses include West Marin School (grades 2 through 8) on the north, single-family residences on the west, commercial establishments of the village on the south and southwest, the USCG housing complex on the southeast, USCG-vacant land on the east, and vacant land currently proposed for the Point Reyes Commons senior housing project on the northeast.

2.2 Project Description

The approved development consists of: (1) the construction of 27 affordable rental apartments and 7 affordable for-sale single-family residences; (2) the reservation of land area for future development of a three-bedroom, up to 2,800-square-foot market rate single-family residence, a one-bedroom, up to 750-square-foot cottage, and a barn; (3) the reservation of 2.28 acres of land area for future development of a 20-room, up to 17,000-square-foot lodge or a similar visitor-serving use; (4) the reservation of 0.62 acre of land area for future development of a 12-space public parking lot and a restroom structure; and (5) the reservation of 2.68 acres of land for open space conservation purposes; (6) subdivision of four existing lots into 13 separate lots; (7) infrastructure improvements; and (8) installation of onsite storm water and wastewater collection and treatment systems.

Wastewater Disposal

The approved project includes 12 separate wastewater-generating parcels, each of which would be served by its own onsite wastewater treatment and disposal system the (thirteenth parcel is to remain as open space). The 12 parcels include the following: (1) the affordable for-sale Papermill Creek single-family residences (Parcels 1-7); (2) 15-unit Papermill Creek Apartments (Parcel 8); (3) 12-unit William Street Apartments (Parcel 11); (4) 2-unit market rate area (Parcel

9); public restroom (Parcel 12); and (5) future overnight visitor serving designated area (Parcel 10).

Septic tanks will be provided for primary treatment and, with the exception of the market rate parcel located in the northeast corner of the project site, effluent disposal will be via standard subsurface leaching trench fields. The market rate parcel will utilize a mound system for effluent disposal because the shallow perched groundwater that occurs in the northeastern portion of the site prohibits the use of subsurface leach fields. Low-flow water fixtures will be used for public restrooms and all residential units. The fixtures for the future commercial use will be designed when the facility is designed. Pursuant to Conditions 70 and 72 and consistent with County standards for septic tank design, all septic tanks will have the capacity sufficient to provide two days of detention volume and will include a two-inch vent on the baffle wall. Below are the details for the specific onsite wastewater treatment and disposal systems for Parcels 1-12.

Papermill Creek Single-Family homes (Parcels 1-7)

The single-family homes will be located on individual parcels and will each be served by its own conventional onsite septic tank/leachfield system. Exhibit 4 shows the leach field areas for the single-family homes. The exact siting of the septic tank will be determined at the time of design. Based on the approved house locations, all of the leach fields will be gravity fed from the septic tank, except Lot 7, which will require a pump. None of the leach fields will require pressure dosing. The leaching trenches are proposed to be 36-inches deep for Lots 1, 2, 3, 4, and 7. Lots 5 and 6 will have 48-inch deep trenches. Each leach field will accommodate the dual-field system with a total capacity of at least 630 gpd.

Apartment Complexes (Papermill Creek Apartments, parcel 8 and Williams Street Apartments, Parcel 11)

The Papermill Creek Apartment and Williams Street Apartments are located on separate parcels and will each be served by its own onsite treatment and disposal system. Each apartment complex will be served by septic tanks sized and located consistent with County Standards (the exact siting of these septic tanks will be determined at the time of design). Conventional gravity sewers leading to the septic tanks will convey sewage from the buildings to the septic tank for primary treatment. Exhibit 4 shows the leach field areas for the two apartment complexes. The leachfields that will serve the Papermill Creek Apartments will be located in two separate areas, a lower area and an upper area. The two areas together are proposed to accommodate a standard dual leachfield system with capacity of 6,800 gpd. The upper leachfield and the upper-lower leach field will be used as winter fields to spread the effluent as evenly as possible to alleviate any potential groundwater mounding effect during wet weather. The lower leach field will accommodate the entire wastewater flow during the summer. The leach field for the Williams Street Apartment will be located in one area, and will accommodate a standard dual leach field system with a total capacity of 5,400 gpd.

The leach fields systems will be pressure dosed, will require pumps and the leaching trenches will be 36-inches deep. Pursuant to Condition 71, the dosing chambers and overflow tanks for the pressurized systems will be sized to accommodate the peak day wastewater generation volume for the corresponding land use to ensure compliance with County standards. High, alarms will be installed in all wastewater-pumping systems, in accordance with County standards, to alert the operator or maintenance staff of a high level in the pump tank. All

pumping systems will include provisions for extended operation during general power outages using a portable emergency generator. A licensed septic system, pump, or plumbing contractor, septic system pumping service, or other qualified maintenance person as identified in an Operating Permit, if issued for the system by the County will perform scheduled and emergency maintenance of the pressurized systems.

Market Rate Parcel (Parcel 9)

The market rate parcel will include a three-bedroom main house plus a one-bedroom guest cottage that will be served by an onsite mound system. A mound system (serving both the main house and guest cottage) will be used for effluent disposal because of the shallow perched groundwater conditions that occur in this area of the project site. Exhibit 4 shows the reserve area for the mound system. The total field capacity is at lest 840 gpd.

Overnight Visitor Serving Commercial Parcel (Parcel 10)

Parcel 10 will be defined in the future, and is intended to be an overnight visitor serving facility. The approved project includes a dual leach field system with a total capacity of 3,040 gpd and will have a pressure dosed leach field system with 36-inch leaching trenches. Exhibit 4 shows the approved leach field area for the commercial parcel. Pursuant to condition 60, when the septic system for the future visitor-serving commercial parcel is designed, it will be designed to comply with Environmental Health Services regulations. Pursuant to Condition 71, the dosing chambers and overflow tanks for the pressurized systems will be sized to accommodate the peak day wastewater generation volume for the corresponding land use to ensure compliance with County standards. High, alarms will be installed in all wastewater-pumping systems, in accordance with County standards, to alert the operator or maintenance staff of a high level in the pump tank. All pumping systems will include provisions for extended operation during general power outages using a portable emergency generator. A licensed septic system, pump, or plumbing contractor, septic system pumping service, or other qualified maintenance person as identified in an the County's Operating Permit, required for the system, will perform scheduled and emergency maintenance of the pressurized systems will be performed.

Public Restrooms (Parcel 12)

The public restrooms will be located on the parcel with the public parking lot and will be served by a single conventional onsite septic tank/leach field system. Exhibit 4 shows the approved leach field area for the restrooms. The exact siting of the septic tanks will be determined at the time of design. Pursuant to Condition 73, to meet County standards, the wastewater treatment system for the public restrooms must use either ultra low flush urinals and very low flow toilets that generate an average of 2 gpd/person or less will be used for the public restrooms, or low flow fixtures that generate an average of 3.5 gpd/person. The restroom septic system will use a 2,500-gallon septic tank and a 5,040 square-foot leach field. The leach field will accommodate a dual-field system with a total capacity of 900 gpd.

Drainage System

The approved project would change the runoff characteristics of the site through the construction of buildings, paved roadways and parking surfaces, and semi permeable rock roadways and paths. The approved project includes an onsite storm water collection and treatment system that incorporates drainage trenches to capture, infiltrate, and treat project runoff. Pursuant to Condition 46, the capacity of the proposed retention facilities will be sized such that the project

results in no increase in post-development runoff volumes beyond existing runoff volumes from a 100-year, 24-hour storm event. This event represents the largest design event (by volume) commonly used as an industry standard. The following requirements will be satisfied: (1) no increase in post-development runoff volumes beyond existing runoff volumes from a 100-year, 24-hour storm event; (2) the drainage and infrastructure design capacity of the proposed retention and infiltration facilities will accommodate any existing runoff from the adjacent West Marin School property; and (3) the drainage and infrastructure design will be sized to accommodate runoff from paved roads and future development on the commercial parcel and the public parking parcel.

In addition, Condition 74 requires: (1) the capacity of the proposed retention facilities to be increased to accommodate surface runoff from the West Marin School; (2) surface runoff to be filtered prior to reaching the infiltration trenches to reduce contaminants and sediment that could clog the trench media (filtering devices may include, but not be limited to, biofilter strips and vegetated channels); and (3) additional protection against the failure of the infiltration trenches.

Infiltration trenches will be used to collect rainfall directly from roof downspouts and disperse the water into the permeable surface soils, much like a leach field system. Plastic infiltrator chambers underlain with drain rock will provide a large subsurface storage volume and sidewall areas for infiltration into the soils. The depth of the trenches will be limited to about 2 feet in the upper portions of the site (because of shallow soils and seasonal groundwater), but in the lower areas the trenches would typically be 4 to 6 feet deep.

Three-foot-deep infiltration trenches will be installed along the property line fronting Commodore Webster Drive in drainage Area C to collect, store, detain and disperse subsurface runoff from the roads and pathways. During small storms, all runoff will be infiltrated onsite; however, during long-duration, high-intensity storms the rate of runoff would, at some point, exceed the infiltration drainage capacity and flow from the property into the 12-inch storm drain located in Commodore Webster Drive.

In addition to the approved infiltration trenches, a rock drain trenches will be installed to collect surface runoff near the public parking lot and restroom area. These drainage trenches will have rock to the surface to allow overland flows to be captured for infiltration into the soil.

The drainage plan for the approved project also includes the use of grassed swales in the Williams Street Apartment area, along Williams Street, near the parking lot and the northern edge of the for-sale single-family affordable homes. The grass swales will increase rainwater infiltration near the source of the runoff and thus mimic existing hydrology. The infiltration trenches and grass swales in the Williams Street Apartment area will not extend within 100 feet of the wetlands and are designed to induce infiltration close to the runoff source.

A grassed-lined v-ditch will extend across the upper property line on the high slope above the Papermill Creek Homes. This V-ditch will serve to capture and divert any surface runoff from the Market Rate parcel around, rather that through the homes site. Runoff will be conveyed for final dispersal to the infiltration drainage trenched on the lower side of the homes.

The approved project includes provision for trapping and removal of sediment contained in site runoff to protect the subsurface infiltration drainage trenches as shown in Exhibit 5. The approved sedimentation facilities include several storm water interceptors and one, central sedimentation basin area. The storm water interceptors are entirely below ground concrete tanks

that provide for settling/collection of sediment as well as debris and oils. The sedimentation basin area, located immediately west of the Papermill Creek Apartments, will be a vegetated basin. The grassed swales in the Williams Street Apartment area will also provide sediment remove functions within the drainage channel itself.

3.0 APPEAL PROCESS

3.1 Local Government Action

On March 19, 2002, the Marin County Board of Supervisors approved a coastal development permit (CDP) for the development of the 36-unit mixed residential Point Reyes Affordable Housing project as further described in Section 2.2 above.

3.2 Filing of Appeal

On March 27, 2002, the Commission received notice of the County's final action approving a CDP for the project. The Commission's appeal period commenced the following working day and ran for ten working days from the Commission's receipt of the County's notice of final local action on March 27, 2002 (March 28 through April 11, 2002). On April 10, 2002 Commissioners Christina Desser and Mike Reilly submitted an appeal of the County's action approving the CDP. On April 11, 2002, the Commission received a second appeal from Elena Belsky, Mark Warner, and the Tomales Bay Association. Following receipt of each of these appeals, the Commission mailed a notification of appeal to the County and the applicant.

Pursuant to Section 30261 of the Coastal Act, the appeal hearing must be set within 49 days from the date that an appeal is filed. The 49th day from the first appeal filing date of April 10, 2002 is May 29, 2002. Accordingly, the appeal hearing is set for May 9, 2002.

3.3 Appeals Under the Coastal Act

After certification of Local Coastal Programs, the Coastal Act provides for limited appeals to the Coastal Commission of certain local government actions on coastal development permits (Coastal Act Section 30603).

Coastal Act Section 30603 provides, in applicable part, that an action taken by a local government on a CDP application may be appealed to the Coastal Commission for certain kinds of developments, including the approval of developments located within certain geographic appeal areas, such as those located between the sea and the first public road paralleling the sea, or within 300 feet of the mean high tide line or inland extent of any beach or top of the seaward face of a coastal bluff; or in a sensitive coastal resource area or located within 100 feet of any wetland, estuary, or stream. Developments approved by counties may be appealed if they are not designated as the "principal permitted use" under the certified LCP. Developments that constitute a major public works or a major energy facility may be appealed, whether they are approved or denied by the local government.

The approved development is not designated as the principally permitted use under the Marin County LCP and is located within 100 feet of wetlands, and thus meets the Commission's appeal criteria in Section 30603 of the Coastal Act. Pursuant to Section 30603 of the Coastal Act, an appeal for development in this location is limited to the allegation that the development does not conform to the standards set forth in the certified LCP or the public access policies set forth in the Coastal Act.

If the Commission decides to hear arguments and vote on the substantial issue question, proponents and opponents will have three minutes per side to address whether the appeal raises a substantial issue. The only persons eligible to testify before the Commission on the substantial issue question are the applicant, persons who made their views known before the local government (or their representatives), and the local government. Testimony from other persons regarding the substantial issue question must be submitted to the Commission or the Executive Director in writing.

It takes a majority of the Commissioners present to find that no substantial issue is raised. Unless it is determined that the project raises no substantial issue, the Commission will conduct a full de novo public hearing on the merits of the project at the same or subsequent hearing. If the Commission conducts a de novo hearing on the appeal, the applicable test under Coastal Act Section 30604 would be whether the development is in conformance with the certified Local Coastal Program.

3.4 Standard of Review

Public Resources Code Section 30625(b) states that the Commission shall hear an appeal unless it determines:

> With respect to appeals to the Commission after certification of a local coastal program, that no substantial issue exists with respect to the grounds on which an appeal has been filed pursuant to Section 30603.

The term *substantial issue* is not defined in the Coastal Act or its implementing regulations. The Commission's regulations simply indicate that the Commission will hear an appeal unless it "finds that the appeal raises no significant question." (14 CCR § 13115(b)). In previous decisions on appeals, the Commission has been guided by the following factors:

1. The degree of factual and legal support for the local government's decision that the development is consistent or inconsistent with the certified LCP and with the public access policies of the Coastal Act;
2. The extent and scope of the development as approved or denied by the local government;
3. The significance of the coastal resources affected by the decision;
4. The precedential value of the local government's decision for future interpretation of its LCP; and
5. Whether the appeal raises only local issues, or those of regional or statewide significance.

If the Commission chooses not to hear an appeal, appellants nevertheless may obtain judicial review of the local government's coastal permit decision by filing a petition for a writ of mandate pursuant to Code of Civil Procedure, Section 1094.5.

4.0 APPEAL OF BELSKY, WARNER AND TOMALES BAY ASSOCIATION

The appeal filed by appellants Belsky, Warner and Tomales Bay Association contends in general (the full text of the appeal is attached as Exhibit 6):

> The Project does not conform to Marin County's certified Local Coastal Program related to, without limitation, health and safety and natural resource preservation policies, in particular, septic systems, storm water and wastewater runoff and waterway preservation.

The appeal maintains that the approved development would not provide adequate wastewater and storm water management and treatment to prevent significant adverse impacts to coastal water quality, environmentally sensitive habitats, and human health in conflict with the water quality and habitat protection policies of the Marin County LCP. The appellants base these contentions on three reports prepared for the appellants by Fall Creek Engineering (FCE 2002a, FCE 2002b, FCE 2002c), and on a letter dated March 18, 2002, from the San Francisco Bay Regional Water Quality Control Board staff (RWQCB) to the Marin County Community Development Agency (Wolfe 2002a). Each of these documents is specifically incorporated as part of the appeal and are attached to the appeal document (see Exhibit 6).

4.1 Wastewater

4.1.1 Summary of Appellants' Contention

The appellants contend that the County's action on the CDP fails to adequately resolve issues related to the impacts of wastewater that would be generated by the approved development to water quality, sensitive coastal resources and human health. These contentions are based on three issues related to the effects of wastewater from the development, which the appellants summarize as follows:

1. The findings and conditions purportedly supporting and allowing approval of the Project do not demonstrate that there is sufficient "storage capacity" in the unsaturated soils (vadose zone) to accept additional wastewater and storm water applied to the property, and to prevent untreated or partially treated sewage effluent from surfacing during average and wet water year conditions.
2. The findings and conditions purportedly supporting and allowing approval of the Project do not demonstrate that the hydrologic investigation adequately assesses the potential water quality impacts to the North Marin Water District water supply wells and Lagunitas Creek.
3. The findings and conditions purportedly supporting and allowing approval of the Project do not demonstrate that onsite and cumulative impacts to groundwater and surface water quality from additional nitrates from the proposed wastewater systems have been adequately addressed.

4.1.2 Summary of Local Government Action

On February 2, 2000, the applicant submitted to Marin County applications for (1) a Countywide Plan amendment, (2) Community Plan amendment, (3) LCP amendment, (4) rezoning, (5) master plan, (6) precise development plan, (7) coastal development permit, and (8) subdivision for the approved development. The County determined these applications to be complete in May 2000, and circulated a Notice of Preparation of an environmental impact report (EIR) for the project on May 8, 2000. On August 14, 2000, the County held a public scoping session to help identify potential project impacts to be addressed in the project EIR. The County circulated a Draft EIR on May 9, 2001. The County responded to written and verbal comments received on the Draft EIR in the Final EIR published on November 29, 2001.

On January 14, 2002, the County Planning Commission unanimously recommended that the County Board of Supervisors determine that Mitigated Alternative Option 2 described in the EIR is the environmentally superior project alternative and certify the Final EIR. On January 29, 2002, the Board of Supervisors determined Mitigated Alternative Option 2 to be the environmentally superior project alternative and certified the EIR. Subsequent to the January 29, 2002 certification of the EIR, the applicant modified its application to conform to Mitigated Alternative Option 2.

At the January 29, 2002 Board of Supervisors hearing, John Sharp, representing the appellants, submitted an engineering report prepared by Fall Creek Engineering, Inc. dated January 28, 2002, contending that the County's action on the project does not adequately address potential significant water quality impacts including, the potential for surfacing of wastewater, contamination of North Marin Water District wells, impacts to Lagunitas Creek, cumulative impacts to ground and surface water from nitrates, and cumulative impacts related to storm water runoff and erosion. This is the same report attached as Exhibit A and incorporated as a part of the April 11, 2002 appeal of the CDP by Belsky, Warner and Tomales Bay Association (FCE 2002a).

The applicant's engineering consultant, Questa Engineering Corp., responded to the January 28, 2002 FCE report in a letter dated February 4, 2002 (Questa 2002a). This response was followed by another letter from FCE dated February 10, 2002, another response from Questa dated March 5, 2002, and a final letter from FCE dated March 18, 2002 (FCE 2002b; Questa 2002b; FCE 2002c). These letters/reports document disagreement between the two engineering consultants over the methodologies used to assess project impacts related to wastewater and polluted runoff. A technical review by the Commission's Water Quality Unit of the issues presented in these documents is contained in Appendix C.

In response to the issues raised by FCE, the County hired a third engineering consultant to conduct a peer review of the project engineering studies related to wastewater and polluted runoff impacts. The peer review confirmed the validity of the engineering analysis conducted by the applicant's consultant, Questa, stating in conclusion:

> Specifically, we find that our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices (PSOMAS 2002).

In a March 18, 2002 letter to the County Community Development Agency, the staff of the RWQCB stated:

> Based on our review of the proposed storm water and wastewater systems, we find that there are unresolved uncertainties including potential inadequate protection of beneficial uses of waters of the State. By modifying the project's proposed Conditions of Approval as indicated, we feel that beneficial uses of waters of the State will be protected, such that it will not be necessary for the Regional Board to request of [*sic*] Report of Waste Discharge for the project (Wolfe 2002a).

Accordingly, the County modified the conditions of approval as recommended by the RWQCB staff. On March 19, 2002, the Board of Supervisors adopted an addendum to the Final EIR incorporating all of the above-cited letters/engineering reports submitted by FCE, the responses from Questa and the peer review. At the same March 19, 2002, hearing, the County took final action approving the CDP for the approved development. The County conditions for approval of the CDP incorporated the RWQCB staff's recommended modifications.

In the findings for its final action, the County specifically addressed each of the issues identified by the appellants concerning potential impacts related to wastewater generated by the approved development to water quality, sensitive coastal resources, and human health. The County concluded that, as conditioned pursuant to its action on the CDP application, the approved development is consistent with the water supply, septic system, and stream and wetland

protection policies of the certified LCP. In particular, the County's final action on the CDP is supported by the following findings:

> As discussed in Section 4.4 (wastewater Treatment and Disposal) of this EIR, the proposed onsite wastewater treatment system would generally comply with [Marin County Environmental Health Services] MCEHS standards. Some components of the wastewater treatment system, such as sizing of certain septic tanks and leachfields [*sic*], do not meet MCEHS specifications. Implementation of Mitigation Measures 4.4-2, 4.4-3, 4.4-4, 4.4-5, 4.4-6, and 4.4-7 [Conditions 70, 71, 72, and 60] would ensure compliance with MCEHS standards. Marin County Environmental Health Services Division would maintain enforcement authority over the inspection, monitoring, and maintenance of the system in accordance with criteria adopted by the Regional [Water Quality Control] Board (Marin County 2001, 4.2-40).
>
> The Marin County Environmental Health Services [Department] has indicated that an up-to-code sewage disposal system could be constructed to service the proposed development (Marin County 2002a, 12).
>
> Although Lagunitas Creek is located within 400 feet of the southerly boundary of the subject property, the Environmental Impact Report found that the project would not result in significant, unmitigable [*sic*] impacts to the stream's resources (ibid).
>
> The project site is located approximately 400 feet north of Lagunitas Creek (at its closest point) and would have no direct impact on the creek or its fish and wildlife species. Based on the discussion of wastewater and drainage issues above, the project would not result in indirect impacts on the water quality of Lagunitas Creek (ibid, 13).

4.1.3 Applicable Policies

The Marin County Unit II LUP Public Services and New Development Section Policy 3 states:

> 3. Sewage disposal.
>
> a. On-site sewage disposal. All on-site sewage disposal systems in the coastal zone shall be evaluated as follows:
>
> (1) Septic systems. All septic systems shall meet the standards contained in either the Minimum Guidelines for the Control of Individual Wastewater Treatment and Disposal Systems adopted by the Regional Water Quality Board on April 17, 1979 or the County's revised septic system code, when approved by the Regional Board. No waivers shall be granted unless a public entity has formally assumed responsibility for inspecting, monitoring, and enforcing the maintenance of the system in accordance with criteria adopted by the Regional Board, or such waivers have otherwise been reviewed and approved by the Regional Board. (See Appendix C)
>
> (2) Expansions or alternations. Where a coastal development permit is necessary for an enlargement or change in the type or intensity of use of an existing structure, the existing or enlarged septic system must meet the Minimum Guidelines of the Regional Water Quality Control Board, or the County's revised septic system code as approved by the Regional Board, before a permit for such enlargement or change can be granted.
>
> (3) Reconstruction of existing systems. A septic system or other sewage disposal facility which served a residential dwelling damaged or destroyed by natural disaster may be rebuilt along with the reconstruction of the dwelling. If the

septic system or other facility is substandard, every effort shall be made to bring it into conformance with County Code.

(4) Alternative systems. The County recommends that provisions be included in the County code to allow alternative sewage disposal systems to be utilized. Until such provisions are incorporated into the code and approved by the Regional Water Quality Control Board however, alternative systems shall only be permitted where a public entity has formally assumed responsibility for inspecting, monitoring, and enforcing the maintenance of the systems in accordance with criteria adopted by the Regional Board

(5) Maintenance. The County supports the establishment of a septic tank maintenance district(s) in the coastal zone for the purpose of monitoring and inspecting septic systems there. To provide for inspection of existing systems not now subject to periodic review under County Code, the County shall investigate the inspection of a septic system upon resale of the associated single-family dwelling.

Marin County Zoning Code Section 22.56.130(B) provides:

> Septic System Standards: The following standards apply for projects which utilize septic systems for sewage disposal.
>
> 1. All septic systems within the coastal zone shall conform with the Minimum Guidelines for the Control of Individual Wastewater Treatment and Disposal Systems adopted by the Regional Water Quality Board on April 17, 1979 or Marin County Code whichever is more stringent. No waivers shall be permitted except where a public entity has formally assumed responsibility for inspecting, monitoring, and enforcing the maintenance of the system in accordance with criteria adopted by the Regional Water Quality Board, or where waivers have otherwise been reviewed and approved under standards established by the Regional Water Quality Board.
>
> 2. Alternative waste disposal systems shall be approved only where a public entity has formally assumed responsibility for inspecting, monitoring, and enforcing the maintenance of the systems in accordance with criteria adopted by the Regional Water Quality Control Board
>
> 3. Where a coastal development permit is necessary for an enlargement or change in the type or intensity use of an existing structure, the project's septic system must be determined consistent with the current guidelines of the Regional Water Quality Control Board, or such other program standards as adopted by the County of Marin.

Pursuant to Marin County Code Chapter 18.06, the County has adopted regulations for the design, construction and repair of individual sewage disposal systems (see Appendix B). These regulations have been approved by the RWQCB as consistent with the State Policy on Discrete Sewage Facilities (RWQCB Resolution 78-14) and Minimum Guidelines for the Control of Individual Wastewater Treatment and Disposal Systems (RWQCB Resolution 79-5). These regulations, which constitute the coastal development permit standards for septic systems in the County, include the following provisions relevant to the Commission's consideration of the appeal:

400 SITE SUITABILITY CRITERIA

401 Setbacks

Minimum horizontal distances between the septic tank and drainfield system and various physical site features shall be as follows:

Site Feature	Setback to Septic Tank	Setback to Edge of Drainfield
Building	5 feet	10 feet
Adjoining Property Line (1)	5 feet	5 feet
Downslope Property Line (1)	10 feet	25 (5)
Wells (domestic or non-domestic)	100 feet	100 feet
Perennial Watercourse (2)	50 feet	100 feet
Ephemeral Watercourse (2) or Seasonal Wetland	50 feet	75 feet
Intermittent Watercourse (2)	50 feet	50 feet
Natural Lake or Water Supply Reservoir (3)	100 feet	200 feet
Ocean, Bay or Tidal Estuary (4)	50 feet	100 feet
Edge of Drainfield Pipe	5 feet	
Cut, Embankment or Natural Bluff	10 feet	4h (6)
Unstable Land Form	50 feet	50 feet
Swimming Pool	10 feet	25 feet
Domestic Water Line	10 feet	10 feet
Driveway or Paved Surface	5 feet	5 feet

(1) Where the property line extends into a public roadway easement the setback shall be measured from the near edge of the easement

(2) Distances shall be measured from the top edge of the bank.

(3) Distances shall be measured from the high-water line.

(4) Distances shall be measured from the mean higher-high-water line.

(5) Setback distance shall be 50 feet if the property line is one where there is a reasonable chance that a cut bank could be excavated for house or road construction.

(6) Distance in feet equals four times the vertical height of the cut, embankment or bluff or 50 feet, whichever is less, but in no case less than 25 feet or more than 100 feet. Distances shall be measured from the top edge of the cut, embankment or bluff. Where an impermeable layer intersects a cut, and natural seepage is evident, the setback shall be 100 feet from the cut, unless it can be demonstrated that other site factors (e.g., soil depth) adequately protects against lateral seepage of untreated effluent.

402 Depth to Groundwater

Minimum depth to the anticipated highest seasonal level of groundwater below the bottom of the drainfield trench shall be as follows:

Percolation Rate (Min/inch)		Soil Texture (% Silt + Clay) [1]	Minimum Depth to Seasonally High Groundwater (ft.)
Slower than 5 or		More than 15	3[2]
1 to 5	and	10 to 15	10
1 to 5	and	less than 10	20
Faster than 1			system prohibited

1. Soil of this texture or finer must exist for a minimum of three (3) continuous feet between the bottom of the drainfield trench and the water table.
2. A minimum of 2 feet may be granted only as a variance of for certain alternative systems.

807. Cumulative Impact Assessment

...

E. **Methods**

...

1. **Nitrate Loading.** Criteria for evaluating the cumulative nitrate loading of alternative systems shall be as follows:

   a. **For Areas Served by Water Wells**.

      (1) Alternative systems, on existing lots or subdivisions, shall not cause the groundwater nitrate-nitrogen concentration to exceed 7.5 mg/l (as N) at the nearest existing or potential point of groundwater withdrawal.

      and

      (2) The total loading of nitrate from new subdivisions shall not result in an average groundwater nitrate-nitrogen concentration, over the geographical extent of the subdivision, that exceeds 7.5 mg/l (as N).

   b. **For Areas Not Served By Water Wells**

      (1) Alternative systems, on existing lots or subdivisions, shall not cause the groundwater nitrate-nitrogen concentration to exceed 10.0 mg/l (as N) at the nearest existing or potential point of groundwater withdrawal.

      and

      (2) The total loading of nitrate from new subdivisions shall not result in an average groundwater nitrate-nitrogen concentration, over the geographical extent of the subdivision, that exceeds 10 mg/l (as N).

In addition to the above-cited LUP and Zoning policies and sewage disposal regulations, Marin County LCP Amendment 1-MAJ-02 incorporates the County's conditions of approval as site-specific LCP implementation standards for the project site. Once certified by the Commission, these implementation measures, along with the existing provisions of the LCP, form the standard of review for any CDP for development of the site. Thus, the CDP for the approved development is conditioned to and must conform to the following provisions:

5. Future development and use of all portions of the property shall be subject to the following restrictions and conditions:

   ...

   C. Landscaping, low height fencing, boulders, and/or signs shall be utilized to discourage vehicular access into or parking over the septic leachfields associated with the Williams Street Apartments, Papermill Creek Apartments, and the future public restrooms and visitor-serving commercial use.

23. PRIOR TO RECORDATION OF THE FINAL MAPS FOR THE RESIDENTIAL OR VISITOR-SERVING USES, APPROVAL OF THE SUBDIVISION IMPROVEMENT AGREEMENT, OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the following items shall be submitted to the Planning Division:

    …

    C. A letter from the North Marin Water District which acknowledges receipt of written confirmation from the agencies with regulatory oversight over the District's water supply wells that all precautionary measures have been incorporated into the design of the project's wastewater systems to minimize potential contamination of the Water District's wells; and

    D. A letter from the Environmental Health Services Division which confirms that sufficient information has been provided by the project engineer to support the methodology and assumptions that form the bases for the design of the wastewater and stormwater systems and which confirms that the design would adequately address the following concerns: (1) adequacy of the design to adequately handle wastewater and stormwater runoff; (2) the adequacy of the hydrogeologic investigation to address concerns relating to viral contamination of Lagunitas Creek; (3) the potential for nitrate contamination of Lagunitas Creek; and (4) the adequacy of the site to accept post-development stormwater run-off. This letter should include written documentation of compliance with County regulations by the Environmental Health Services Division for on-site wastewater systems for all components and aspects of the designs. The compliance letter shall be submitted to the Regional Water Quality Control Board for review and approval by the Regional Board Executive Officer.

57. PRIOR TO ISSUANCE OF A BUILDING PERMIT, the applicant shall obtain the necessary construction permits for the septic systems and comply with all permitting conditions related to the permits. The permit approvals include either a renewable operating permit issued by Environmental Health Services, or Waste Discharge Requirements or waiver thereof issued by the Regional Water Quality Control Board.

58. In addition to standard requirements for routine inspection and maintenance, An Operation, Maintenance, and Monitoring Program and Contingency Plan shall be required for the

project. The plan shall include provisions for water quality monitoring, repair/replacement of malfunctioning equipment, and other remedial measures to handle unexpected problems with the septic leachfields and to prevent contamination of groundwater sources. The plan should include a complete description of all equipment and components of the system, a description of how the system and relevant individual components are intended to work, and all activities needed or recommended in order to ensure proper system performance. The plan should identify procedures for conducting monitoring of ground water quality upslope, within, and downslope of the project site, and other ambient conditions (e.g. rainfall and groundwater levels) in order to demonstrate compliance with original wastewater system design criteria. The contingency component of the plan should include actions to be taken in the event of malfunctioning equipment or system, of unexpected problems, or that the system does not comply with design criteria or ambient condition criteria. The plan should identify the responsible party for the system, how identified plan actions will be implemented, and how identified contingency actions will be funded. The plan shall be submitted for review and approval by the Community Development Director and the Regional Board Executive Officer for the Regional Water Quality Control Board, in consultation with the North Marin Water District, PRIOR TO RECORDATION OF THE FINAL MAP.

A. provisions for water quality monitoring, repair/replacement of malfunctioning equipment, and other remedial measures to handle unexpected problems with the septic leachfields and to prevent contamination of groundwater sources;

B. a complete description of all equipment and components of the system, a description of how the system and relevant individual components are intended to work, and all activities needed or recommended in order to ensure proper system performance;

C. procedures for conducting monitoring of ground water quality upslope, within, and downslope of the project site, and other ambient conditions (e.g. rainfall and groundwater levels) in order to demonstrate compliance with original wastewater system design criteria;

D. actions to be taken in the event of malfunctioning equipment or system, of unexpected problems, or that the system does not comply with design criteria or ambient condition criteria;

E. the responsible party for the system;

F. how identified plan actions will be implemented; and

G. how identified contingency actions will be funded.

59. In order to enhance the operation of the septic system and minimize costs for maintenance and repair, the use of kitchen sink garbage disposal units is discouraged in the Papermill Creek Homes, Papermill Creek Apartments, and the Williams Street Apartments. The applicant shall include this restriction as part of the disclosure documents to potential buyers and renters of the homes. PRIOR TO FINAL INSPECTION OF EACH SEPTIC SYSTEM, the Environmental Health Services staff shall conduct an inspection to verify that the kitchens are not equipped with kitchen sink garbage disposal units.

60. When the septic system for the future visitor-serving commercial parcel is designed, it shall be designed to comply with Environmental Health Services regulations.

65. The project shall comply with North Marin Water District's water conservation Regulation 17. This regulation includes requirements for low flow plumbing fixtures, installation of laundry facility washing machines that are Energy Star Rated and restrictions on turf irrigation.

70. PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT FOR THE SEWAGE DISPOSAL SYSTEM, and in order to comply with county standards for septic tank design, a two-inch vent on the baffle wall of all septic tanks shall be constructed by the applicant. (Wastewater Treatment #4.4-2 and #4.5-14)

71. PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT FOR THE SEWAGE DISPOSAL SYSTEM, the dosing chambers and overflow tanks for the pressurized systems shall be sized to accommodate the peak day wastewater generation volume for the corresponding land use to ensure compliance with County standards. (Wastewater Treatment #4.4-3 and #4.5-14)

    A. High water alarms shall be installed in all wastewater pumping systems, in accordance with County standards, to alert the operator or maintenance staff of a high level in the pump tank;

    B. All pumping systems shall include provisions for extended operation during general power outages using a portable emergency generator; and

    C. Scheduled and emergency maintenance of pressurized systems shall be performed by a licensed septic system, pump, or plumbing contractor, septic system pumping service, or other qualified maintenance person as identified in an Operating Permit, if issued for the system by the County.

72. PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT FOR THE SEWAGE DISPOSAL SYSTEM, and to comply with county standards for septic tank design, the project shall include septic tank capacity sufficient to provide 2 days of detention volume for all parcels. (Wastewater Treatment, #4.4-4 and #4.5-14)

73. There are two methods available to ensure compliance with MCEHS sizing standards for the public restroom septic tank and leach field. PRIOR TO ISSUANCE OF A CONSTRUCTION PERMIT FOR THE SEWAGE DISPOSAL SYSTEM, the project proponent shall design the project's wastewater treatment system for the public restrooms according to one of the following. (Wastewater Treatment, #4.4-5, #4.5-9, and #4.5-14)

    A. Ultra low flush urinals and very low flow toilets that generate an average of 2 gpd/person or less shall be used for the public restrooms.

    B. Low flow fixtures that generate an average of 3.5 gpd/person or less shall be used, a 2,500-gallon septic tank shall be installed, and a 5,040 square-foot leachfield shall be constructed for the public restrooms. The project sponsor shall provide documentation to MCEHS sufficient to demonstrate compliance with MCEHS standards for leachfield sizing.

4.1.4 Substantial Issue Analysis

In consideration of whether the appellants' contentions concerning the impacts of wastewater generated by the approved development raise a substantial issue of conformity with the Marin County LCP, the Commission is guided by the five factors described in Section 3.4 above. In

this instance, the Commission finds that Factor 1, the degree of factual and legal support for the local government's decision that the development is consistent with the certified LCP, especially supports the determination that the appeal raises no substantial issue.

Through its review and final action on the approved development, the County considered each of the issues raised by the appellants concerning potentially significant adverse impacts related to wastewater treatment and disposal. The County concluded that by conditioning the CDP to require certain modifications to the design of the wastewater treatment system and to impose rigorous inspection, maintenance, and monitoring requirements, the approved development would not significantly impact coastal water quality, environmentally sensitive habitat areas, or human health in conformity with the above-cited policies of the Marin County LCP.

The County's action is supported by a letter from the staff of the RWQCB (Wolfe 2002a). In this letter, the RWQCB staff recommended certain modifications to the County's conditions of approval to address unresolved uncertainties concerning potential water quality impacts to groundwater, wetlands, Lagunitas Creek, and Tomales Bay. Accordingly, the County modified Conditions 57 and 58 (renumbered from 54 and 55) to address these concerns as recommended by the RWQCB staff. In a subsequent letter dated April 24, 2002, the RWQCB staff concludes:

> The purpose of this letter is to confirm that recommendations regarding conditions of approval for the Point Reyes Affordable Homes Project, as stated in our March 18, 2002, letter to the County of Marin, were sufficiently incorporated into the County's Conditions of Approval for the Project, which were adopted by the Marin County Board of Supervisors on March 19, 2002 (Wolfe 2002b).

The County's action is also supported by the third engineering consultant that conducted a peer review of the appellants' and the applicant's engineering studies related to wastewater and polluted runoff impacts. The peer review confirmed the validity of the engineering analysis conducted by the applicant's consultant, Questa, stating in conclusion:

> Specifically, we find that our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices (PSOMAS 2002).

The Commission's Water Quality Unit has reviewed the technical studies concerning water quality impacts of the project and the engineering and design criteria for the project wastewater treatment system contained in the County's administrative record, the conditions of approval as modified pursuant to the RWQCB recommendations, and the engineering reports submitted in support of the appeal. The Commission's Water Quality Unit also believes that the evidence in the local record supports the County's determinations in approving the project as conditioned. A summary of this analysis is provided below. The Water Quality Unit's detailed technical review of the relevant data is contained in Appendix C.

Depth to Groundwater

As cited above, the LCP includes policies and regulations to prevent contamination of groundwater resources from sewage disposal systems. Pursuant to Section 402 of the County's sewage disposal regulations, the minimum depth to the anticipated highest seasonal level of groundwater below the bottom of a septic system drainfield trench is determined based on the soil percolation rate and the soil type. In accordance with the County's sewage disposal

regulation Sections 502 and 503, Questa performed a soil profile inspection and percolation tests. Based on the resulting data, the County determined that the required minimum depth to the anticipated highest seasonal level of groundwater for the project site is three feet.

To determine the anticipated highest seasonal level of groundwater below the septic system drainfield trenches, Questa performed wet weather testing in accordance with the County's sewage disposal regulation Sections 504. Questa observed groundwater levels from monitoring wells and numerous backhoe test pits excavated after prolonged periods of rain, representative of seasonal high groundwater levels. Questa also conducted a groundwater mounding[1] analysis based on observed seasonal high groundwater levels and a derived hydraulic conductivity factor[2]. Questa derived the hydraulic conductivity factor used in its groundwater mounding analysis from percolation tests performed at the depth where mounding is most likely to occur. Questa's groundwater mounding study shows that adequate separations to groundwater will be provided with the proposed leach field design consistent with the requirements of the LCP (Questa 2002a). Applicable Marin County Sewage Disposal Regulations allow for a reduction in the minimum depth to seasonably high groundwater of up to 50% with groundwater mounding conditions.

The appellants' consultant, FCE, challenges the validity of Questa's conclusions regarding the anticipated highest seasonal level of groundwater based on the following contentions:

- The groundwater mounding study deals only with wastewater but not storm water.
- There may be interaction between the wastewater and storm water despite the 50-foot separation between the two kinds of infiltration trenches.
- FCE used the specific percolation test results from the various areas in the lower east side to arrive at a hydraulic conductivity of 7.2 ft/day, not 20 ft/day as claimed by Questa. (FCE used percolation rates from a variety of depths.)
- Because the data used to determine the depth to groundwater at the proposed leach field locations were gathered from wells drilled into the bedrock with bentonite and cement seal from the groundwater surface to at least 11 feet deep, the groundwater level thus measured cannot truly represent the water table above the confining layer.
- It is technically invalid for Questa to directly convert percolation rates into hydraulic conductivities. Instead, FCE provides two regression equations for the two parameters. Results using these two equations show that at least four septic systems will become flooded and the lower leach field for the Papermill Creek Apartments would fail during periods of high groundwater.

  (FCE 2002a, FCE 2002b, FCE 2002c)

As provided in Appendix C, the Commission's Water Quality Unit has reviewed the relevant data and concurs that the evidence in the local record supports the County's determination that the approved development conforms to Unit II LUP Public Services and New Development Section Policy 3, Zoning Code Section 22.56.130(B), and the County's sewage disposal

[1] An outward and/or upward expansion of the free water table caused by groundwater recharge.
[2] A measure of the rate at which water will move through a permeable soil or rock layer. For a particular soil or rock layer, the hydraulic conductivity may not be the same in the horizontal direction as in the vertical direction.

regulations. Following is a summary of the Water Quality Unit's analysis contained in Appendix C.

The evidence in the local record provided by Questa supports the County's determination that the highest seasonal groundwater conditions do not occur underneath the proposed leach fields. The higher groundwater levels tend to occur in the upper portions of the project site. In regard to the alleged inappropriateness of relying on groundwater levels observed in the monitoring wells because these wells were potentially measuring levels of a confined aquifer, Questa confirmed the observed groundwater levels in the monitoring wells with additional water levels obtained from numerous backhoe test pits.

In comparison, FCE's water budget (infiltrated rainwater plus wastewater) analysis comparing the estimated annual flow input with the unsaturated zone's water holding capacity at a single instant does not take into account that a real life groundwater regime is a dynamic system that allows flows into and out of the system continuously. It was reasonable for the County to rely on Questa's drainage calculations using the 100-year, 24-hour storm represent a conservative (safe) approach to evaluate the ground's ability to absorb a sudden increase in water input during and immediately after larger-than-normal storms. The 100-year, 24-hour design storm already represents rain events much higher in volume than past storm water best management practice (BMP) design requirements imposed by the Commission and others, and certainly higher in volume than the average rainfall events as well. Compliance with this requirement would exceed compliance with the more widely accepted 85th percentile, 24-hour design storm requirement. It is neither necessary nor appropriate to expect a water holding capacity large enough to hold the system's one entire year's worth of inflow, with the assumption of zero outflow.

The evidence supports the County's decision to reject FCE's contention that Questa's groundwater mounding study only takes into account wastewater. Contrary to FCE's contention, Questa's groundwater mounding study takes into account both wastewater and storm water contributions to the groundwater system. High seasonal groundwater levels were observed at the end of the last El Nino winter in April 1998 and then in March 2000, following a February with 140% of normal precipitation. The predicted groundwater rise, based on wastewater flow, in the mounding analysis is subtracted from the available unsaturated soil depth to arrive at a predicted net separation to groundwater. This figure is then compared with the required separation to determine if a system complies with the County's septic code. As discussed in Section 4.2 below, the County conditions of approval, including in particular Condition 46, ensure that the total post-development rainwater/storm water contribution to the site's subsurface will not vary significantly from the pre-development conditions due to the 100-year, 24-hour design storm used for storm water BMPs. Thus, while Questa's claim that runoff upslope of leach fields is collected and infiltrated 50 feet below the leach fields is only true for certain areas, storm water infiltration upslope does not change the groundwater mounding conditions underneath the leach fields because the overall rainwater available in the subsurface of the leach field areas will remain similar under both pre- and post-development conditions.

Therefore, the groundwater mounding study conducted by the applicant's consultant and confirmed by the County's third party peer review demonstrates adequate separations to groundwater for the leach fields consistent with the LCP. As further discussed below, Condition 58 of the County's permit provides an added level of protection because the post-development monitoring program to be implemented will assess and verify compliance with the County's

required separation to groundwater and validity of the mounding analysis conducted. The program will include monitoring wells installed both up gradient and down gradient of the leach fields, and within the leach fields as well. In accordance with Condition 58, the applicant will reanalyze potential groundwater mounding for the leach fields in the event that some of the wastewater flows are to be redirected to fields with predicted excess capacities in response to unanticipated problems.

Nitrate Loading

In accordance with County Sewage Disposal Regulation Section 807 of the County's Regulations concerning alternative sewage disposal systems sets criteria for evaluating the cumulative nitrate loading of alternative systems. Pursuant to Section 807(E)(1), in areas served by water wells, the total loading of nitrate from new subdivisions shall not result in an average groundwater nitrate-nitrogen concentration, over the geographical extent of the subdivision that exceeds 7.5 mg/l (as N). In areas not served by water wells, the total loading of nitrate from new subdivisions shall not result in an average groundwater nitrate-nitrogen concentration, over the geographical extent of the subdivision, that exceeds 10 mg/l (as N). Although it appears that these standards apply only to alternative sewage disposal systems and not to standards leach field systems, the County's findings for the CDP show that both the standard and alternative systems of the approved development will conform to these cumulative nitrate-loading standards and that the approved development will not result in significant cumulative nitrate-loading impacts to Lagunitas Creek or existing public water wells of the North Marin Water District.

The appellants' consultant, FCE, contends that the County's findings concerning cumulative nitrate-loading impacts are flawed because:

- The nitrate loading analysis presented in the feasibility report considers whether the groundwater concentration of nitrate-nitrogen in certain target zones would exceed 10 mg/l of various scenarios of wastewater discharge. Lagunitas Creek was not one of the target zones considered. There needs to be an analysis of whether any nitrate would enter the creek because of the project and if it did what would be the impact.
- Questa failed to estimate nitrate loading using the most current and a higher estimated wastewater loading from the site. If the most up-to-date number were used, the computed nitrate-nitrogen concentration at the downgradient edge of the property would exceed 10 mg/L in an average year with 10% runoff.
- It was unrealistic to assume a complete mixing of a year's wastewater with all the groundwater recharged on the entire site within one average year in performing the nitrate loading analysis. Questa failed to provide any explanation on how this mixing can be achieved.
- A more thorough analysis of potential impacts to the NMWD wells should be conducted.

The evidence in the record, including evidence provided by the applicant's consultant and confirmed by the County's third party peer review, supports the County's determination that the cumulative nitrate impact on Lagunitas Creek and the North Marin Water District wells will be insignificant for the following reasons:

In accordance with Condition 46 of the CDP, the approved development will provide for on site infiltration of the runoff generated from the 100-year, 24-hour design storm. This volume of

storm water infiltration will ensure that the overall rainwater contribution to the subsurface will not decrease after development. The infiltrated rainwater will provide substantial dilution of nitrate concentration.

Cumulative nitrogen contribution from the post-development wastewater flow on the site's eastern portion represents roughly a 54% increase from the current nitrogen loading resulting from onsite horse grazing and the West Marin School. Previous monitoring using onsite and offsite wells showed the average onsite concentration to be 2.4 mg-N/L, compared to the average concentration of 0.3 mg-N/L for the four off-site wells. The decrease in concentration from onsite to offsite locations confirmed the natural nitrate attenuation capacity available in the subsurface.

There are 10+ acres of wetland meadow and riparian woodland between the project site and Lagunitas Creek, representing an approximately 450-foot horizontal setback from the creek. This area will provide soil denitrification and vegetative uptake of nitrate. Questa estimates a minimum of 1,310 lb per year nitrogen removal capacity for this area, more than enough to handle the predicted combined loading of 705 pounds from the site's eastern portion and the West Marin School.

In addition, the post-development monitoring program required by the County pursuant to Condition 58 will further ensure the minimization of offsite nitrate migration. Accordingly, any exceedance of the established nitrate-nitrogen action levels will trigger implementation of the required contingency plan. Relevant contingency measures include diversion of problematic wastewater flows to the reserve fields and/or the construction of pretreatment systems to improve the denitrification capacity and efficiency of the septic systems. These contingency measures will further reduce nitrate discharge as needed to correct any potential exceedence.

North Marin Water District Wells

The closest septic leach field associated with the approved development is located approximately 700 feet from three public water supply wells (only two of which are currently in use) operated by the North Marin Water District (NMWD). As such, the County found that the approved septic system satisfies the 100-foot setback requirement for water wells contained in Section 401 of the County Sewage Disposal Regulations. However, the appellants contend that the County's findings and conditions do not demonstrate that the hydrologic investigation adequately assesses the potential water quality impacts to the NMWD water supply wells.

The appellants' consultant, FCE, contends that the County's findings concerning potential microbial contamination of public drinking water supplies are inadequate because:

- In determining the zone of contribution[3] to the NMWD wells, the County only considered pre-project conditions.
- The estimated pre-project groundwater travel time to the NMWD wells of 2.5 years may pose a significant threat of viral contamination to the water supply.

However, FCE later conceded that "[c]onsidering the topography and geology of the area" the water from the project site will not be captured by the NMWD wells under any circumstance.

[3] The area surrounding a pumping well that encompasses all areas or features that supply groundwater recharge to the well.

The Commission's Water Quality Unit has reviewed the relevant data and concludes that except for the far eastern corner, the site lies essentially outside the Zone of Contribution to the NMWD wells. The estimated travel time for any groundwater to the wells of 2.5 years complies with the Department of Health Services' Microbial/Direct Chemical Contamination Zone criterion, which calls for a minimum time-of-travel of two years to ensure protection of drinking water supplies from viral and bacterial contamination. Therefore, the evidence reviewed by the Water Quality Unit supports the County's determination that the approved development is consistent with the provisions of the certified LCP concerning protection of public drinking water supplies.

4.1.5 Conclusion -- Wastewater

While there is disagreement between the applicant's and the appellants' consultants concerning some of the methodologies used to assess potential wastewater impacts, consistent with the determination of the staff of the RWQCB and the County's third party peer review, the County's conditions of approval as modified are adequate to fully address any outstanding issues related to wastewater.

As more fully addressed in Appendix C, the key County condition of approval addressing unresolved wastewater impacts is Condition 58. As modified in accordance with the specific recommendations of the RWQCB staff, Condition 58 requires "An Operation, Maintenance, and Monitoring Program and Contingency Plan" subject to the review and approval of the RWQCB Executive Officer. In accordance with this condition:

> The plan should identify procedures for conducting monitoring of ground water quality upslope, within, and downslope of the project site, and other ambient conditions (e.g. rainfall and groundwater levels) in order to demonstrate compliance with original wastewater system criteria. The contingency component of the plan should include actions to be taken in the event of malfunctioning equipment or system, of unexpected problems, or [of a determination] that the system does not comply with design criteria or ambient condition criteria. The plan should identify the responsible party for the system, how identified plan actions will be implemented, and how identified contingency actions will be funded [*emphasis added*].

In order to be consistent with the LCP, the County's action on the approved development must fully resolve any remaining uncertainties concerning the wastewater impacts of the approved development in a manner that would ensure the prevention of significant adverse impacts to water quality, sensitive habitats, and human health. Condition 58 goes beyond the County's routine inspection and maintenance standards for individual wastewater treatment systems by requiring more rigorous monitoring and by including a requirement for a contingency plan to address unexpected problems.

In evaluating the effectiveness of this condition to protect coastal resources from potential impacts, it is important to understand whether feasible contingency measures adequate to respond to unexpected problems exist. This question is addressed, in part, by an outline of anticipated monitoring and contingency measures provided to the County by the applicant prior to its action on the CDP application (Questa 2002d). However, given the requirement of Condition 58 that a contingency plan be developed to ensure satisfaction of all design and ambient condition critera, a more complete evaluation of contingency measures will be required to satisfy Condition 58. The Commission's Water Quality Unit has discussed the contingency plan requirement of Condition 58 with County and RWQCB staff and has determined that feasible measures are available to adequately respond to unexpected wastewater impacts whether

due to system design or operational flaws or unanticipated or changed environmental conditions. Such contingency measures include for example:

- installation of pretreatment devices, and
- effluent diversion to designated reserve leach field sites.

In addition to imposing rigorous monitoring, inspection, and maintenance requirements and requiring identification of contingency measures to address unanticipated problems, Condition 58 provides an additional level of certainty that these requirements will be fully implemented by requiring the applicant to identify the responsible party for the system and how approved plan actions would be funded and implemented. Taken together, the provisions of Condition 58, along with the other County conditions of approval, provide a high degree of certainty that the approved development will be undertaken in conformity with the water quality and habitat protection policies of the Marin County LCP.

As shown above and as further discussed in Appendix C, the information reviewed by the Commission's Water Quality Unit supports the County's findings concerning wastewater impacts of the approved development. In addition, the County's final action on the CDP application is conditioned to resolve all outstanding issues related to potential water quality impacts to the satisfaction of the staff of the RWQCB and the Commission's Water Quality Unit. Therefore, the Commission finds that the degree of factual and legal support for the County's decision that the development is consistent with the certified LCP supports the determination that the appeal raises no substantial issue of conformity of the approved development with respect to the above-cited grounds concerning wastewater impacts.

4.2 Polluted Runoff

4.2.1 Summary of Appellants' Contention

The appellants contend that the County's action on the CDP fails to adequately resolve issues related to the impacts of polluted runoff to water quality and sensitive habitats. These contentions are based on two issues, which the appellants summarize as follows:

1. The findings and conditions purportedly supporting and allowing approval of the Project do not demonstrate that there is sufficient "storage capacity" in the unsaturated soils (vadose zone) to accept additional wastewater and storm water applied to the property ...

4. The findings and conditions purportedly supporting and allowing approval of the Project do not demonstrate cumulative impacts to surface water from potential impacts from plan storm water runoff and erosion have been adequately addressed.

4.2.2 Summary of Local Government Action

On February 2, 2000, the applicant submitted to Marin County applications for (1) a Countywide Plan amendment, (2) Community Plan amendment, (3) LCP amendment, (4) rezoning, (5) master plan, (6) precise development plan, (7) coastal development permit, and (8) subdivision for the approved development. The County determined these applications to be complete in May 2000, and circulated a Notice of Preparation of an environmental impact report (EIR) for the project on May 8, 2000. On August 14, 2000, the County held a public scoping session to help identify potential project impacts to be addressed in the project EIR. The County circulated a Draft EIR on May 9, 2001. The County responded to written and verbal comments received on the Draft EIR in the Final EIR published on November 29, 2001.

On January 14, 2002, the County Planning Commission unanimously recommended that the County Board of Supervisors determine that Mitigated Alternative Option 2 described in the EIR is the environmentally superior project alternative and certify the Final EIR. On January 29, 2002, the Board of Supervisors determined Mitigated Alternative Option 2 to be the environmentally superior project alternative and certified the EIR. Subsequent to the January 29, 2002, certification of the EIR, the applicant modified its application to conform to Mitigated Alternative Option 2.

At the January 29, 2002 Board of Supervisors hearing, John Sharp, representing the appellants, submitted an engineering report prepared by Fall Creek Engineering, Inc. dated January 28, 2002, contending that the County's action on the project does not adequately address potential significant water quality impacts including, the potential for surfacing of wastewater, contamination of North Marin Water District wells, impacts to Lagunitas Creek, cumulative impacts to ground and surface water from nitrates, and cumulative impacts related to storm water runoff and erosion. This is the same report attached as Exhibit A and incorporated as a part of the April 11, 2002 appeal of the CDP by Belsky, Warner and Tomales Bay Association (FCE 2002a).

The applicant's engineering consultant, Questa Engineering Corp., responded to the January 28, 2002 FCE report in a letter dated February 4, 2002 (Questa 2002a). This response was followed by another letter from FCE dated February 10, 2002, another response from Questa dated March 5, 2002, and a final letter from FCE dated March 18, 2002 (FCE 2002b; Questa 2002b; FCE 2002c). These letters/reports document disagreement between the two engineering consultants over the methodologies used to assess project impacts related to wastewater and polluted runoff. A technical review by the Commission's Water Quality Unit of the issues presented in these documents is contained in Appendix C.

In response to the issues raised by FCE, the County hired a third engineering consultant to conduct a peer review of the project engineering studies related to wastewater and polluted runoff impacts. The peer review confirmed the validity of the engineering analysis conducted by Questa, stating in conclusion:

> 3. While storm flow events in excess of the design event (100 year, 24 hour) will influence the ground water and wastewater systems... Storm flows greater than these standards will produce some offsite runoff. This runoff, however, would not include the agricultural constituents contained in the current runoff. In addition, runoff from the earlier stages (i.e., first flush) of events larger than the design event would be treated, and the project would result in no increase in post-development runoff volumes from the design event.
>
> 4. Specifically, we find that our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices (PSOMAS 2002).

In a March 18, 2002 letter to the County Community Development Agency, the staff of the RWQCB stated:

> Based on our review of the proposed storm water and wastewater systems, we find that there are unresolved uncertainties including potential inadequate protection of beneficial uses of waters of the State. By modifying the project's proposed Conditions of Approval as indicated, we feel that

> beneficial uses of waters of the State will be protected, such that it will not be necessary for the Regional Board to request of [*sic*] Report of Waste Discharge for the project (Wolfe 2002a).

Accordingly, the County modified the conditions of approval as recommended by the RWQCB staff. On March 19, 2002, the Board of Supervisors adopted an addendum to the Final EIR incorporating all of the above-cited letters/engineering reports submitted by FCE, the responses from Questa and the peer review. At the same March 19, 2002, hearing, the County took final action approving the CDP for the approved development. The County conditions for approval of the CDP incorporated the RWQCB staff's recommended modifications.

The County's action on the CDP for the approved development included the imposition of eleven conditions addressing both construction-related and post-construction polluted runoff control. These include Conditions 23, 25, 41, 46, 47, 51, 52, 56, 65, 74, and 75 (see below). The County's findings for approval of the CDP conclude that, as conditioned to prevent significant adverse impacts to water quality and sensitive habitat areas from polluted runoff, the approved development is consistent with the policies of the Marin County LCP, as follows:

> Mitigation Measure 4.5-4 [Condition 75] requires the project to utilize stormwater best management practices recommended by the San Francisco Bay Area Stormwater Management Agencies Association, or similar practices intended to minimize the effects of stormwater runoff (Marin County 2001, 4.2-18).
>
> Mitigation Measures 4.4-5, 4.4-6, and 4.5-5 [Conditions 73 and 56] would ensure proper treatment of wastewater and captured surface runoff to protect the water quality of water produced by NMWD wells (ibid, 4.2-22).
>
> Mitigation Measure 4.5-2 [Conditions 46 and 74] requires the project to include devices to capture and treat all projected runoff up to the 100-year, 24-hour storm event. Mitigation Measure 4.5-4 requires the use of construction best management practices to minimize erosion and sedimentation to protect offsite areas, including Lagunitas Creek (ibid, 4.4-23).
>
> The proposed project may be under construction through the 2002/2003 fall and winter season. As discussed in Section 4.5 (Hydrology and Water Quality) of this EIR, however, erosion and sediment control mitigation measures would reduce any potentially significant construction-related water quality impacts to a less-than-significant level. Specifically, Mitigation Measure 4.5-4 [Condition 75] requires the project to install erosion control and sedimentation control measures and slope stability measures before the beginning of the rainy season. This mitigation measure also requires sediment basins to be maintained through the development process to remove sediment from runoff waters. All sediment will be retained on site unless removed to an appropriate dumping location. Mitigation Measure 4.5-4 [Condition 75] also requires revegetation and topsoil stabilization consistent with this policy. Because Mitigation Measure 4.5-4 [Condition 75] would reduce construction-related water quality impacts to a less-than-significant level, the project would be consistent with this [LUP watershed and water quality protection/grading] policy. Because Mitigation Measure 4.5-4 [Condition 75] would reduce construction-related water quality impacts to a less-than-significant level, the project would be consistent with this [LUP watershed and water quality protection/grading] policy (ibid, 4.2-47).
>
> Impervious surfaces have been minimized to the maximum extent possible. As discussed in Section 4.5 (Hydrology and Water Quality) of this EIR, the proposed project includes an onsite stormwater collection and treatment system. Consistent with this [LUP watershed and water quality protection/grading] policy, the proposed system includes grassy swales rather than concrete storm drains, and infiltration trenches that facilitate groundwater recharge. The project,

therefore, would be consistent with this [LUP watershed and water quality protection/grading] policy (ibid).

No portion of the project would be located within Lagunitas Creek or its Stream Conservation Area. As discussed in Section 4.5 (Hydrology and Water Quality), Mitigation Measures 4.5-4, 4.5-8, and 4.5-9 [Conditions 75, 46, 74, and 73] would reduce all project-related water quality impacts to less-than-significant levels. As discussed in Section 4.13 (Biological Resources), these mitigation measures would reduce all project-related impacts to fish and wildlife supported by Lagunitas Creek to less-than-significant levels (ibid, 4.2-49).

As discussed in Section 4.5 (Hydrology and Water Quality) of this EIR, Mitigation Measure 4.5-2 [Conditions 46 and 74] would reduce offsite flood-related impacts to the maximum extent practicable by increasing the capacity of the proposed retention facilities to maintain or reduce peak off-site runoff rates from a 100-year, 24-hour storm event. This represents the largest design event (by volume) commonly used as an industry standard (ibid, 4.2-50).

As discussed in Section 4.5 (Hydrology and Water Quality), the project includes devices to capture and treat all projected runoff up to the 100-year, 24-hour storm event. Mitigation Measure 4.5-4 [Condition 75] requires the use of construction best management practices to minimize erosion and sedimentation to protect offsite areas, including Lagunitas Creek (ibid, 4.2-51).

4.2.3 Applicable Policies

The Marin County Unit II LUP New Development and Land Use Policy 6 provides:

6. Watershed and water quality protection/grading. In order to ensure the long-term preservation of water quality, protection of visual resources, and the prevention of hazards to life and prosperity, the following policies shall apply to all construction and development, including grading and major vegetation removal, which involve the movement of earth in excess of 150 cubic yards.

    a. Development shall be designed to fit a site's topography, soils, geology, hydrology, and any other existing condition and be oriented so that grading, cut and fill operations, and other site preparation are kept to an absolute minimum. Natural features, landforms, and native vegetation shall be preserved to the maximum extent feasible. Areas of a site which are not suited to development because of known soil, geologic, flood, erosion or other hazards shall be kept in open space.

    b. For necessary grading operations, the smallest practicable area of land shall be exposed at any one time during development and the length of exposure shall be kept to the shortest practicable time. The clearing of land shall be avoided during the winter rainy season and all measures for removing sediments and stabilizing slopes shall be in place before the beginning of the rainy season.

    c. Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed on the project site in conjunction with national grading operations and maintained through the development process to remove sediment from runoff waters. All sediment shall be retained on site unless removed to an appropriate dumping location.

    d. Temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils which have been exposed during grading or development. Cut and

fill slopes shall be stabilized immediately with plantings of native species, appropriate non-native plants, or with accepted landscaping practices.

e. Where topsoil is removed by grading operation, it shall be stockpiled for reuse and shall be protected from compacting and wind erosion during stockpiling.

f. The extent of impervious surfaces shall be minimized to the greatest degree possible. Provisions shall be made to conduct surface water to storm drains or suitable watercourses to prevent erosion. Drainage devices shall be designed to accommodate increased runoff resulting from modified soil and surface conditions as a result of development. Grassed waterways are preferred to concrete storm drains, where feasible for runoff conveyance. Water runoff beyond natural levels shall be retained on site whenever possible to facilitate groundwater recharge.

Marin County Zoning Code Section 22.56.130(C) requires the following:

Grading and excavation: The following standards shall apply to coastal projects which involve the grading and excavation of 150 cubic yards or more of material.

1) Development shall be designed to fit a site's topography and existing soil, geological, and hydrological conditions so that grading, cut and fill operations, and other site preparation are kept to an absolute minimum and natural landform are preserved. Development shall not be allowed on site, or areas of a site, which are not suited to development because of known soil, geology, flood, erosion or other hazards that exist to such a degree that corrective work, consistent with these polices (included but not limited to the protection of natural landform) is unable to eliminate hazards to the property endangered thereby.

2) For necessary grading operations, the smallest practicable area of land shall be exposed at any one time during development and the length of exposure shall be kept to the shortest practicable time. The clearing of land shall be avoided during the winter rainy season and all measures for removing sediments and stabilizing slopes shall be in place before the beginning of the rainy season.

3) In addition to such standards as may be imposed under MCC Chapter 23.08.090, the following standards shall be required:

   a) Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed at the beginning of grading operations and maintained throughout the development process to remove sediment from runoff waters. Temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils which have been exposed during grading or development. Cut and fill slopes shall be permanently stabilized as soon as possible with native plants or other suitable landscaping techniques.

   b) The extent of impervious surfaces shall be minimized to the greatest degree possible. Water runoff beyond natural levels shall be retained on-site whenever possible to facilitate maximum groundwater recharge. In order to prevent gullying the velocity of runoff on an off the site shall be dissipated through the application of appropriate drainage controls so that the runoff rate does not exceed the storm water runoff. Grassed or natural waterways are preferred to concrete storm drains for runoff conveyance.

c) Pollutants such as chemicals, fuels, and other harmful materials shall be collected and disposed of in an approved manner.

d) Where topsoil is removed by grading operations, it shall be stockpiled for subsequent re-use, where appropriate.

e) All debris shall be removed from the site upon the completion of the project.

f) Permit application for grading which involve cut slopes in excess of 8 feet or fill in excess of 5 feet shall include a reported from a registered soils or civil engineer.

The Unit II LUP Natural Resources Policies provide:

3. Streams and riparian habitats. The policies contained in this section shall apply to all streams in the Unit II coastal zone, perennial or intermittent, which are mapped by the United States Geological survey (U.S.G.S) on the 7.5 minute quadrangle series.

...

c. Stream Buffers. Buffers to protect streams from the impacts of adjacent uses shall be established for each stream in Unit II. The stream buffer shall be established for each stream in Unit II. The stream buffer shall include the area covered by riparian vegetation on both side of the stream and the area 50 feet landward from the edge of the riparian vegetation. In no case shall the stream buffer be less than 100 feet in width, on either side of the stream, as measured from the top of the stream banks. (no specific condition that addresses setback- however, the project is over 400 feet away)

d. Development in Stream Buffers. No Construction, alternation of land forms or vegetation removal shall be permitted within such riparian protection area. Additionally such project applications shall identify a stream buffer area which shall extend a minimum of 50 feet from the outer edge of riparian vegetation, but in no case less than 100 feet from the banks of a stream. Development shall not be located within this stream buffer areas. When a parcel is located within a stream buffer area; design review shall be required to identify and implement the mitigation measures necessary to protect water quality, riparian vegetation and the rate and volume of stream flows. The design process shall also address the impacts of erosion and runoff, and provide for restoration of disturbed areas by replacement landscaping with plant species naturally found on the site. Where a finding based upon factual evidence is made that development outside a riparian protection or stream buffer area would be more environmentally damaging to the riparian habitat than development within the riparian protection or stream buffer area, development of principal permitted uses may occur within such area subject to design review and appropriate mitigation measures. (no development proposed within 100 feet)

5. Other Environmentally Sensitive Habitats

...

(b) Other sensitive habitats include habits of rare or endangered species and unique plant communities. Development in such areas may only be permitted when it depends upon the resources of the habitat area. Development adjacent to such areas shall be set back a sufficient distance to minimize impacts on the habitat area. Public access to sensitive habitat areas, including the timing, intensity, and location of such access, shall be

controlled to minimize disturbance to wildlife. Fences, roads, and structures, which significantly inhibit wildlife movement, especially access to water shall be avoided.

Zoning Code Section 22.56.130 states in relevant part:

...

G. Stream and Wetland Resource Protection. The following standards shall apply to all development within or adjacent streams identified as blue-line streams on the most recent USGS 7 ½ minute quadrangle ma(s) for the project area.

…

3) For proposed projects located adjacent to streams, application submittals shall include the identification of existing riparian vegetation as a riparian protection area. No construction, alteration of land forms or vegetation removal shall be permitted within such riparian protection area. Additionally, such projects applications shall identify a stream buffer area which shall extend a minimum of 50 feet from the outer edge of the riparian vegetation, but in no case less than 100 feet from the banks of a stream. Development shall not be located within this stream buffer area. When a parcels is located within a stream buffer area; design review shall be required to identify and implement the mitigation measures necessary to protect water quality, riparian vegetation and the rate and volume of stream flows. The design process shall also address the impacts of erosion and runoff, and provide for restoration of disturbed areas by replacement landscaping with plant species naturally found on the site. Where a finding based upon factual evidence is made that development outside a riparian protection or stream buffer area would be more environmentally damaging to the riparian habitat than development within the riparian protection or stream buffer area, development of principal permitted uses may occur within such area subject to design review and appropriate mitigation measures.

...

I. Wildlife Habitat Protection

…

2) Siting of New Development. Coastal project permit applications shall be accompanied by detailed site plans indicating existing and proposed construction major vegetation, watercourses, natural features and other probable wildlife habitat areas. Development shall be sited to avoid such wildlife habitat areas and to provide buffers for such habitat areas. Construction activities shall be phased to reduce impacts during breeding and nesting periods. Development that significantly interferes with wildlife movement; particularly access to water, shall not be permitted.

In addition to the above-cited LUP and Zoning policies, Marin County LCP Amendment 1-MAJ-02 incorporates the County's conditions of approval as site-specific LCP implementation standards for the project site. Once certified by the Commission, these implementation measures, along with the existing provisions of the LCP, form the standard of review for any CDP for development of the site. Thus, the CDP for the approved development is conditioned to and must conform to the following provisions:

23. PRIOR TO RECORDATION OF THE FINAL MAPS FOR THE RESIDENTIAL OR VISITOR-SERVING USES, APPROVAL OF THE SUBDIVISION IMPROVEMENT

AGREEMENT, OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the following items shall be submitted to the Planning Division:

...

D. A letter from the Environmental Health Services Division which confirms that sufficient information has been provided by the project engineer to support the methodology and assumptions that form the bases for the design of the wastewater and stormwater systems and which confirms that the design would adequately address the following concerns: (1) adequacy of the design to adequately handle wastewater and stormwater runoff; (2) the adequacy of the hydrogeologic investigation to address concerns relating to viral contamination of Lagunitas Creek; (3) the potential for nitrate contamination of Lagunitas Creek; and (4) the adequacy of the site to accept post-development stormwater run-off. This letter should include written documentation of compliance with County regulations by the Environmental Health Services Division for on-site wastewater systems for all components and aspects of the designs. The compliance letter shall be submitted to the Regional Water Quality Control Board for review and approval by the Regional Board Executive Officer.

25. PRIOR TO APPROVAL OF THE SUBDIVISION IMPROVEMENT AGREEMENT OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the applicant shall submit plans for installation of all stormwater treatment and disposal improvements that are shown on Sheet C-1A of "Exhibit A." The applicant shall also demonstrate that an Operation, Maintenance, and Monitoring Plan for the stormwater systems, has been submitted and found acceptable by the Regional Board Executive Officer for the Regional Water Quality Control Board. This Plan should include identification of which entity will be responsible for maintaining the stormwater systems, and the means to assure that necessary funding to conduct operation, maintenance, and monitoring activities are in place.

41. PRIOR TO OCCUPANCY for the Williams Street Apartments, Papermill Creek Apartments, and Papermill Creek Homes, the applicant shall install all proposed and required landscaping. All soils disturbed by development of the project shall be reseeded with native grasses or wildflowers to control erosion. The applicant shall call for a Community Development Agency staff inspection of the landscaping and irrigation at least five working days before the anticipated completion of the project. Failure to pass inspection will result in withholding of the final inspections and imposition of hourly fees for subsequent reinspections.

46. PRIOR TO APPROVAL OF A SUBDIVISION IMPROVEMENT AGREEMENT OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the applicant shall comply with the following condition. To reduce offsite flood-related impacts to the maximum extent practicable, the capacity of the proposed retention facilities shall be sized such that the project results in no increase in post-development runoff volumes beyond existing runoff volumes from a 100-year, 24-hour storm event. This event represents the largest design event (by volume) commonly used as an industry standard. The following requirements shall be satisfied:

A. Installation and operation of the drainage system shall be such that the site drainage during construction shall result in no increase in post-development runoff volumes beyond existing runoff volumes from a 100-year, 24-hour storm event.

B. The drainage and infrastructure design capacity of the proposed retention and infiltration facilities shall accommodate any existing runoff from the West Marin School property.

C. The drainage and infrastructure design shall be sized to accommodate runoff from paved roads, and future development on the commercial parcel and the public parking parcel.

D. The applicant shall provide supporting hydrology and hydraulic calculations, references, model studies, reports, or other information necessary to confirm the project's drainage design.

47. PRIOR TO APPROVAL OF A SUBDIVISION IMPROVEMENT AGREEMENT OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the applicant shall comply with the following condition. The project shall have an erosion and sediment control plan which addresses both interim (during construction) and final (post construction) control measures. The specific control measures to be utilized shall be subject to the review and approval of the Department of Public Works and shall be in general accordance with the current "Manual of Standards for Erosion and Sediment Control Measures" published by the Association of Bay Area Governments. The plan shall be implemented by October 15t^{h} or earlier if so required by the Department of Public Works. The applicant shall demonstrate that a Notice of Intent to Comply with the statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity has been filed. The following requirements shall be met.

A. All disturbed surfaces including but not limited to cut and fill slopes, building pads, driveways and areas cleared of vegetation shall be protected against erosion by measures approved by the Department of Public Works that are appropriate to the site, phase of construction and time of year.

B. Grading operations shall not be conducted during the rainy season (October 15th through April 15th) without prior approval from the Department of Public Works. Such approval shall only be given upon clear demonstration, to the satisfaction of the Department of Public Works, that at no stage of the work will there be any substantial risk of increased sediment discharge from the site. When grading operations are permitted during the rainy season, a phasing plan and work schedule shall be required to insure that the smallest practicable area of erodible land is exposed at any one time and the time of exposure is minimized. The phasing plan and work schedule must be approved by the Department of Public Works prior to the start of grading or prior to October 1st at the discretion of the Department of Public Works. A cash bond in an amount approved by Department of Public Works may be required to insure that control measures are implemented and maintained.

51. PRIOR TO RECORDATION OF ANY FINAL MAP OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the applicant shall submit a conforming tentative map for review by the Department of Public Works and the Community Development Agency which indicates conformance with all conditions of project approval. The tentative map shall include the following:

A. Drainage facilities, including but not limited to, infiltration trenches, sedimentation basins, and conduits, serving multiple parcels shall have drainage and drainage access easements. Sufficient easements shall be required for underground conduits, infiltration trenches, for disposal of surface and storm waters, together with sufficient easements for overflow and ponding, and vehicle access necessary to provide for proper operation and maintenance of drainage facilities. All such easements shall comply with Marin County Title 24 and shall be of sufficient width for the purposes intended, as approved by the Public Works.

...

52. PRIOR TO RECORDATION OF EACH FINAL MAP, the applicant shall submit a maintenance agreement(s) which provides for the ability of the drainage and roadway improvements to be maintained by the associated parcels. The agreement shall be submitted to the Department of Public Works for review and approval and shall be recorded concurrently with the Final Map.

56. PRIOR TO FINAL INSPECTION OF THE SUBDIVISION IMPROVEMENTS OR GRADING PERMIT, whichever occurs first, the applicant shall conduct a flow verification test of the infiltration trenches, and the engineer shall certify to the Department of Public Works that the infiltration trenches were installed in substantial conformance to the plans and are operational.

65. The project shall comply with North Marin Water District's water conservation Regulation 17. This regulation includes requirements for low flow plumbing fixtures, installation of laundry facility washing machines that are Energy Star Rated and restrictions on turf irrigation [*emphasis added*].

74. PRIOR TO APPROVAL OF THE SUBDIVISION IMPROVEMENT AGREEMENT OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the applicant shall comply with the following condition. To reduce offsite flood-related impacts and to maintain the design capacity of the infiltration trenches to the maximum extent practicable, the following mitigation measures shall be implemented. (Hydrology, #4.5-2 and #4.5-14)

    A. To accommodate surface runoff from the West Marin School, the capacity of the proposed retention facilities shall be increased to accommodate any school runoff.

    B. To promote a long design life of the infiltration trenches, surface runoff shall be filtered prior to reaching the infiltration trenches to reduce contaminants and sediment that could clog the trench media. Filtering devices may include, but not be limited to, biofilter strips and vegetated channels. These features shall be subject to review and approval by Marin County prior to implementation.

    C. During construction, the following measures shall be taken to provide additional protection against the failure of the infiltration trenches:

        1. Adequate protection from siltation of the trench drains shall be provided during construction through the use of best management practices (BMP).

        2. Exposed soils shall be revegetated as soon as possible to prevent erosion.

        3. Excavated surfaces shall be scarified to promote percolation upslope of the trenches.

        4. The drain rock shall be washed prior to installation into the excavations.

        5. To prevent surrounding soils from migrating into the trenches, the excavation shall be lined with a permeable filter fabric or a similar filtering device.

        6. Inspection wells shall be constructed to allow monitoring of the performance of the trenches.

75. PRIOR TO APPROVAL OF THE SUBDIVISION IMPROVEMENT AGREMENT OR ISSUANCE OF A GRADING PERMIT, whichever occurs first, the applicant shall comply with the following condition. In accordance with Marin County Code Chapters 23.08 and 24.04, the project sponsor shall implement erosion and sedimentation Best Management Practices to protect the water quality of Lagunitas Creek and local groundwater. Best Management Practices (BMPs), designed to protect stormwater quality, are summarized in the California Storm Water Best Management Practice Handbooks (Stormwater Quality Task Force 1993) and can be recommended by the Association of Bay Area Governments Manual of Standards for Erosion and Sediment Control Measures. BMPs are subject to review and approval by Marin County Department of Public Works shall be implemented during project construction. According to Marin County Code Section 24.04.625, grading shall not be conducted during the rainy season (October 15 through April 15) without prior approval by Marin County Department of Public Works. (Hydrology, #4.5-4, #4.5-12, and #4.5-14)

    The following measures shall be implemented in accordance with the LCP:

    A. Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed on the project site in conjunction with initial grading operations and maintained through the development process to remove sediment from runoff waters. All sediment shall be retained on site unless removed to an appropriate dumping location.

    B. Temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils exposed during grading. Cut and fill slopes shall be stabilized immediately with approved landscape vegetation.

    C. All topsoil removed by grading operations shall be stockpiled for reuse onsite and shall be protected from compaction, wind, and erosion during stockpiling.

4.2.4 Substantial Issue Analysis

In consideration of whether the appellants' contentions concerning the impacts of polluted runoff resulting from the approved development raise a substantial issue of conformity with the Marin County LCP, the Commission is guided by the five factors described in Section 3.4 above. In this instance, the Commission finds that Factor 1, the degree of factual and legal support for the local government's decision that the development is consistent with the certified LCP, especially supports the determination that the appeal raises no substantial issue.

Through its review and final action on the approved development, the County considered the potentially significant adverse impacts to water quality and sensitive habitats related to polluted runoff. The County's approval of the CDP included eleven conditions to prevent significant adverse individual and cumulative impacts due to polluted runoff (Conditions 5, 23, 57, 58, 59, 60, 65, 70, 71, 72, and 73). In addition to imposing these conditions through its approval of the CDP, the County also adopted these conditions as site-specific LCP implementation measures. Once certified by the Commission, these implementation measures, along with the existing provisions of the LCP, form the standard of review for any CDP for development of the site. The County found that by imposing these conditions, which require construction and post-construction best management practices (BMPs), storm water system inspection, maintenance, and monitoring requirements, and modifications to the proposed storm water retention facilities sufficient to capture and treat 100% of the runoff of up to the 100-year, 24-hour storm event, the approved development would fully conform to the above-cited policies of the Marin County LCP.

The County's action is supported by a letter from the staff of the RWQCB (Wolfe 2002a). In this letter, the RWQCB staff recommended certain modifications to the County's conditions of approval to address potential water quality impacts to groundwater, wetlands, Lagunitas Creek, and Tomales Bay. The letter concludes:

> Based on our review of the proposed storm water and wastewater systems, we find that there are unresolved uncertainties including potential inadequate protection of beneficial uses of waters of the State. By modifying the project's proposed Conditions of Approval as indicated, we feel that beneficial uses of waters of the State will be protected, such that it will not be necessary for the Regional Board to request of [*sic*] Report of Waste Discharge for the project.

The County modified Conditions 25 and 47 in response to the RWQCB staff recommendations. Accordingly, Condition 25 requires the development to be undertaken in accordance with a Storm Water System Operation, Maintenance, and Monitoring Plan subject to the review and approval of the RWQCB Executive Officer. Condition 47 requires the applicant to file a Notice of Intent to Comply with the Statewide NPDES General Permit for Storm Water Discharge Associated with Construction Activity.

The County's action is also supported by the third engineering consultant that conducted a peer review of the appellants' and the applicant's engineering studies related to wastewater and polluted runoff impacts. The peer review confirmed the validity of the engineering analysis conducted by the applicant's consultant, Questa, stating in conclusion:

> Specifically, we find that our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices (PSOMAS 2002).

The Commission's Water Quality Unit has reviewed the technical studies concerning water quality impacts of the project and the engineering and design criteria for the project storm water treatment system, the conditions of approval as modified pursuant to the RWQCB recommendations, and the engineering reports submitted in support of the appeal. A detailed technical review of the relevant data along with the full text of the conditions of approval related to the design, inspection, maintenance and monitoring of the storm water treatment system is contained in Appendix C. A summary of this analysis is provided below.

Soil Storage Capacity

As discussed in Section 4.1.4 above, Questa has conducted a groundwater mounding analysis based on observed predevelopment seasonal high groundwater levels and a derived hydraulic conductivity. The study takes into account both rainwater and expected wastewater contributions to the subsurface environment. The result shows that adequate separations to groundwater will be provided with the approved leach field design. In addition, because the post-development rainwater loading to the subsurface is expected to remain similar to that prior to development, the mounding study also provides useful insights to the post-development hydraulic conditions and points to the site's subsurface capacity to absorb the combined loading of wastewater and storm water. The information in the local record, including the information provided by the applicant's consultant and confirmed by the County's third party peer review, support the County's findings concerning the site's subsurface water storage capacity. Furthermore, the post-development monitoring requirements imposed by the County through Condition 58 will further ensure compliance with the County's regulations and design criteria.

In accordance with this condition, contingency measures will be implemented in the event of noncompliance.

Cumulative Impacts of Storm Water Runoff and Erosion

The approved development as conditioned by the County is required to meet stringent erosion and polluted runoff control standards. The Conditions of approval meet or exceed the requirements of the LCP. For example, Condition 47 requires an erosion and sediment control plan addressing both construction and post-construction control measures consistent with the requirements of Unit II LUP Policy 6b and 6d. Pursuant to Condition 75, sediment basins (including debris basins, desilting basins, or silt traps) are required to be installed on the site in conjunction with initial grading operations and maintained throughout the construction period. All sediments must be retained on the site unless removed to an appropriate dumping location. These condition requirements parallel the requirements of the LCP related to polluted runoff and erosion control. In addition, Condition 46 exceeds the LCP requirements by requiring the storm water treatment system to be designed with sufficient capacity to capture and treat on site the 100-year, 24-hour design storm. This requirement ensures that runoff leaving the site will most likely not increase upon project completion. Any impacts downslope, including to Lagunitas Creek, associated with runoff will therefore be minimized and insignificant. In addition, to promote a long design life of the storm water infiltration trenches and prevent clogging, the County has required that surface runoff be filtered prior to reaching the trenches.

4.3 Conclusion – Polluted Runoff

The information reviewed by the Commission's Water Quality Unit supports the County's findings concerning polluted runoff. Consistent with the determination of the staff of the RWQCB and the County's third party peer review, the County's conditions of approval as modified are adequate to fully address any outstanding issues related to polluted runoff control and treatment.

In addition to requiring a full suite of construction and post-construction BMPs, Condition 46 requires capture and treatment on site of 100% of the runoff from a 100-year, 24-hour storm event. This standard substantially exceeds the storm water capture and treatment standard typically required for development projects in the Coastal Zone. The Commission finds that by requiring the project to meet this high standard for runoff capture and treatment, the County's action provides a high degree of certainty that the approved development will be undertaken in conformity with the water quality and habitat protection policies of the certified LCP.

The County's final action on the CDP application is conditioned to resolve all outstanding issues related to potential water quality impacts to the satisfaction of the staff of the RWQCB and the County's third party peer review. Therefore, the Commission finds that the degree of factual and legal support for the County's decision that the development is consistent with the certified LCP supports the determination that the appeal raises no substantial issue of conformity of the approved project with respect to the above-cited grounds concerning polluted runoff impacts.

5.0 APPEAL OF COMMISSIONERS DESSER AND REILLY

The local government action on the approved development included both the submittal of an amendment to the LCP to the Commission and approval of a CDP. The LCP amendment is a necessary precedent to the CDP because the approved development does not conform to the

site's pre-LCP amendment zoning. The zoning change is required because the approved development's clustered design does not conform to the minimum lot-size and setback standards of the pre-amendment zoning. Because the County's final action approving the CDP for the project precedes Commission certification of the related LCP amendment, the approved development was at the time of the final local action inconsistent with the certified LCP. It is on this basis that Commissioners Desser and Reilly appealed the CDP, contending:

> The approved development does not conform to the policies of the certified County of Marin Local Coastal Program (LCP) concerning allowable uses, minimum lot sizes, and setbacks.
>
> **Zoning**
>
> The action taken by the County of Marin approving Coastal Development Permit 2-MAR-00-134 for the subdivision of an 18.6-acre property into 13 parcels and the construction a 36-unit mixed-residential project is inconsistent with the existing zoning of the project site. The project site is partially zoned Coastal, Suburban Agricultural (C-RA: B-3) zoning which does not allow two-family dwelling units, requires a minimum lot size of 20,000 square feet per unit, and requires front, side, and rear setbacks of 30, 15, 10 feet respectively. The approved project includes two-family dwelling units that are not consistent with the setback and minimum 20,000 square-foot/unit parcel size requirements of the C-RA: B-3 zoning district.

Prior to its consideration of this appeal, the Commission certified Marin County LCP Amendment 1-MAJ-02 as submitted. As such, the above-cited zoning inconsistency is resolved and the approved development conforms to the currently effective certified LCP zoning designation for the project site. Therefore, the Commission finds that no substantial issue exists with respect to the grounds on which the appeal of Commissioners Desser and Reilly is filed.

Appendix A
References

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FCE 2002c. Supplemental Project Review – Point Reyes Affordable Housing Project. Fall Creek Engineering. March 18, 2002.

Marin County 2001. Final Environmental Impact Report for the Point Reyes Affordable Housing Project. EDAW, Inc. November 21, 2001.

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Marin County 2002b. Conditions of Approval, Point Reyes Affordable Homes, Inc. Countywide Plan Amendment, Community Plan Amendment, Local Coastal Plan Amendment, Local Coastal Permit, Master Plan, Precise Development Plan, and Subdivision. Marin County Board of Supervisors. March 19, 2002.

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Questa 2002a. Point Reyes Affordable Housing Project – Response to Comment Letter from Fall Creek Engineering. Questa. February 4, 2002.

Questa 2002b. Point Reyes Affordable Housing Project – Response to Comment Letter from Fall Creek Engineering of February 10, 2002. Questa. March 5, 2002.

Questa 2002c. Point Reyes Affordable Housing Project – Response to Third Comment Letter from Fall Creek Engineering dated March 18, 2002. Questa. April 8, 2002.

Questa 2002d. DRAFT Monitoring and Contingency Plan for Point Reyes Affordable Housing Project Wastewater Facilities. Questa. April 8, 2002.

Wolfe 2002a. Request to Modify Conditions of Approval for the Point Reyes Affordable Homes Project, Point Reyes Station, Marin County. Bruce Wolfe, Watershed Management Division Chief, San Francisco Bay Regional Water Quality Control Board. March 18, 2002.

Wolfe 2002b. Point Reyes Affordable Homes Project, Point Reyes Station, Marin County – Regional Water Quality Control Board Recommendation for Marin County's Conditions of Approval. Bruce Wolfe, Watershed Management Division Chief, San Francisco Bay Regional Water Quality Control Board. April 24, 2002.

Appendix C
Water Quality Unit Analysis

This is a summary of comments, sorted by the four main issue areas, raised by the project appellants in letters from their consultant, Fall Creek Engineering, Inc. (FCE), and the corresponding responses from the project applicant's consultant, Questa Civil, Environmental & Water Resources (Questa). PSOMAS is the third party peer reviewer of the exchanged documents. Coastal Commission staff's analyses follow the comments and responses, at the end of each issue. The dates shown indicate the dates of the letters.

Issue #1: Onsite Disposal of Wastewater and Stormwater Runoff

Appellants' Consultant, FCE (1/28/2002)

- The FEIR and supplemental information do not provide a thorough hydrologic analysis of existing and future conditions at the site to determine if the additional wastewater and stormwater will be contained on-site. The drainage calculations should account for seasonal hydrologic changes, not just the short-duration design storm of 100-year, 24-hour design storm. A groundwater mounding analysis should be conducted.

Applicant's Consultant, Questa (2/4/2002)

- The wastewater disposal systems and stormwater infiltration facilities will be located in areas on-site with the lowest seasonal groundwater levels. FCE's assertion that they are located at areas with the highest seasonal groundwater levels is incorrect. The highest seasonal groundwater conditions occur in the upper portions of the property, including areas identified as seasonal wetlands.
- A groundwater mounding analysis has already been done with results showing adequate separation to groundwater will be provided by the proposed leachfield designs.
- A minimum 50-foot setback is proposed between leaching trenches and stormwater infiltration trenches to avoid potential soil saturation impacts.
- No stormwater trenches are located downslope of any of the three larger wastewater disposal systems. These are the systems with the greatest potential to cause localized groundwater mounding.
- FCE estimated the total amount of wastewater plus stormwater infiltration that will be generated by the project over the course of an entire year, and compared this to the available water holding capacity of the unsaturated zone at a single instant during the wet weather season. This is unrealistic because wastewater and stormwater generation is spread out over a period of time and the groundwater system is always in a state of flux with water entering and leaving the system at all times.

Appellants' Consultant, FCE (2/10/2002)

- The groundwater mounding study presented in the feasibility study deals only with the wastewater but not the stormwater.
- There may be interaction between the wastewater and stormwater despite the 50 feet separation between the two kinds of infiltration trenches.

- FCE used the specific percolation test results from the various areas in the lower east side to arrive at a hydraulic conductivity of 7.2 ft/day, not 20 ft/day as claimed by Questa. (FCE used percolation rates from a variety of depths.)

Applicant's Consultant, Questa (3/5/2002)

- Percolation test values from deeper than 48 inches provide the most representative values for the groundwater mounding analysis because the purpose is to evaluate the potential rise in the water table in the soil zones below the leaching trenches. The percolations test data show increasing permeability in the deeper soils in the proposed leachfield areas. FCE used percolation rates from shallower soil zones.
- USDA's Marin County soil survey indicates that the prevalent soil onsite, the Cortina, increases its permeability with depth. The estimated permeability at the 44 to 60 inch depth ranges from 12 to 40 ft/day. Also, these are vertical permeability figures; horizontal permeability is commonly faster by a factor of two or more.
- Rainwater infiltration into the soils in the areas upslope of the leachfields will decline because of construction of access road, driveways and walkways. The runoff from these areas will be collected and dispersed into the ground on the lower side of the site, 50 feet downslope of the leachfields.
- Infiltrated stormwater will not raise the groundwater levels under the leachfields because (a) the leachfields will be located 50 feet upslope of the infiltration trenches, (b) the leaching trenches will be 2 to 4 feet higher than the infiltration trenches, and (c) there will be no net increase in the amount of rain water/stormwater added to the subsurface environment in the leachfield area.
- Groundwater mounding analysis for the larger systems is required as part of the normal design review process when permit applications are submitted to Marin County Environmental Health Services.

Appellants' Consultant, FCE (3/18/2002)

- Data used to determine the depth to groundwater at the proposed leachfield locations were gathered from wells drilled into the bedrock with bentonite and cement seal from the groundwater surface to at least 11 feet deep. The groundwater level thus measured cannot truly represent the water table above the confining layer.
- It is technically invalid for Questa to directly convert percolation rates into hydraulic conductivities. Instead, FCE provides two regression equations for the two parameters. Results using these two equations show that at least four septic systems will become flooded and the lower leachfield for the Papermill Creek Apartments would fail during periods of high groundwater.

Applicant's Consultant, Questa (4/8/2002)

- Wet weather groundwater levels were observed not only from the permanent wells but also from numerous backhoe test pits. These test pits were dug in April 1998 and March 2000. April 1998 was at the end of the El Nino winter. March 2000 followed a very wet February when 140% of normal precipitation fell. The more conservative of these data were used in calculating groundwater mounding to provide the necessary safety cushion. Leachfield widths and/or trench depths were modified to

accommodate some of the shallower groundwater depths observed in March 2000. (See the 4/5/2000 Addendum)

- The two hydraulic conductivity/percolation rate equations provided by FCE are invalid because (1) they contradict one another (K increases with P in one while decrease with P in the other), (2) the results yielded by the two equations are an order of magnitude different (the equations obviously are site-specific and cannot be applied to the subject site), (3) there is no universal percolation test procedure and that the ones employed in arriving at the equations weren't specified (Questa followed the Marin County's percolation test procedure), and (4) it's not clear whether the hydraulic conductivity provided by the two equations represents vertical or horizontal K. Depending on the soil structure, horizontal K, which is used in the groundwater mounding analysis, is generally greater than the vertical rate by a factor of 2 to 20 times.

Third Party Peer Reviewer, PSOMAS

- PSOMAS concluded, after having reviewed all correspondence up to March 5, 2002, that "our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices."

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- The information in the local record provided by Questa supports the County's determination that the highest seasonal groundwater conditions do not occur underneath the proposed leachfields. The higher groundwater levels tend to occur in the upper portions of the project site. In regard to the alleged inappropriateness of relying on groundwater levels observed in the monitoring wells because these wells were potentially measuring levels of the confined aquifer, the information provided in the local record by Questa and confirmed by the County's third party peer review demonstrates that the observed levels in the wells had been confirmed with additional water levels obtained from numerous backhoe test pits. In addition, inappropriate numbers had already been removed from the analyses. Therefore, the observed levels are deemed representative of seasonal high groundwater levels.
- It was reasonable for the County to rely on Questa's drainage calculations using the 100-year, 24-hour storm because such calculations represent a conservative (safe) approach to evaluate the ground's ability to absorb a sudden increase in water input during and immediately after larger-than-normal storms. The 100-year, 24-hour design storm already represents rain events much higher in volume than past stormwater best management practice (BMP) design requirements imposed by the Commission and others, and certainly higher in volume than the average rainfall events as well. Compliance with this requirement would entail compliance with the more widely accepted 85^{th} percentile, 24-hour design storm requirement. In comparison, FCE's water budget (infiltrated rainwater plus wastewater) analysis comparing the estimated annual flow input with the unsaturated zone's water holding capacity at a single instant does not take into account the fact that real life groundwater regime is a dynamic system that allows flows into and out of the system

continuously. It is neither necessary nor appropriate to expect a water holding capacity large enough to hold the system's one entire year's worth of inflow, with the assumption of zero outflow.

- The information supports the County's decision to reject FCE's contention that Questa's groundwater mounding study takes into account only the wastewater but not the stormwater contribution to the groundwater system. Rainwater contribution in the groundwater mounding analysis had already been incorporated into the numbers used for the parameter, Available Unsaturated Soil Depth Below Trench. This parameter represents the space between the trench bottom and the groundwater level. The numbers were derived by observing the seasonal high groundwater levels, which, under predevelopment conditions, were largely due to rainwater infiltration. High seasonal groundwater levels were observed at the end of the last El Nino winter in April 1998 and then in March 2000, following a February with 140% of normal precipitation. The predicted groundwater rise, based on wastewater flow, in the mounding analysis is subtracted from the available unsaturated soil depth to arrive at a predicted net separation to groundwater. This figure is then compared with the required separation to determine if a system complies with the County's septic code. It should be noted that the total post-development rainwater/stormwater contribution to the site's subsurface is not expected to vary significantly from the pre-development conditions due to the 100-year, 24-hour design storm used for stormwater BMPs.
- Staff agrees with the applicant's consultant's determination that percolation test values from deeper than 48 inches would provide the most representative values for groundwater mounding analysis because mounding in this case is expected to occur from bottom up. Nevertheless, it would have been more appropriate for Questa to derive location-specific hydraulic conductivities for the leachfields. Instead, Questa chose 20 ft/day as the hydraulic conductivity, a general number corroborated by USDA's data. Even if one only examines percolation rates from tests performed at 48 inches and deeper, one would still be able to find quite a range of percolation rates. For example, at 48 inches, percolation rates from test pits 80 and 81 are 23.4 and 20.7 MPI, respectively. These translate into 5.1 and 5.8 ft/day, respectively. These figures are much lower than the assumed K of 20 ft/day. This illustrates the fallacy in assuming one single K for the entire site. Different and more location-specific Ks would have been more appropriate.

  Notwithstanding the use of one single K, in general, there does seem to be a pattern of higher permeability with soil depth. Accordingly, the 20 ft/day used by the County in approving the project is reasonable. And, the groundwater mounding study conducted by the applicant's consultant does indicate adequate separations to groundwater for the leachfields. An added level of confidence is provided because the post-development monitoring program to be implemented will assess and verify compliance with the County's required separation to groundwater as well as the validity of the mounding analysis conducted. This monitoring program will include monitoring wells installed both upgradient and downgradient of the leachfields, and within the leachfields as well.

  The project proponent has also agreed, as part of the required contingency plan, to reanalyze potential groundwater mounding for the leachfields in the event that some of the wastewater flows are to be redirected to fields with predicted excess capacities. It would then be appropriate to perform these analyses using location-specific hydraulic conductivities from the appropriate depth.
- Questa's assumption that runoff upslope of leachfields is collected and infiltrated 50 feet below the leachfields is only true for certain areas. Particularly, on the west side

of the site, a significant portion of the runoff is to be infiltrated using grass swales and infiltration trenches upslope of the proposed areas for the public restroom and Williams Apartments' leachfields. Nevertheless, stormwater infiltration upslope does not change the groundwater mounding conditions underneath the leachfields because the overall rainwater available in the subsurface of the leachfield areas will likely remain similar under both pre- and post-development scenarios. Questa's groundwater mounding analysis accounting for both existing rainwater and projected wastewater contributions thus supports the County's determination that mounding is not an issue, assuming the hydraulic conductivity used mimics real life conditions.

Issue #2: Hydrogeologic Investigation

Appellants' Consultant, FCE (1/28/2002)

- In determining the Zone of Contribution to the NMWD wells, Questa only considered pre-project conditions.
- The estimated pre-project groundwater travel time to Lagunitas Creek and the NMWD wells are 1 and 2.5 years, respectively. These times are too fast and may pose a significant threat (nitrate and virus) to groundwater quality at those locations.

Applicant's Consultant, Questa (2/4/2002)

- The study to determine the Zone of Contribution for the NMWD wells was based on: (a) the areal geology as determined from lithology revealed through the drilling of the eight monitoring wells plus the NMWD wells; (b) groundwater levels, contours, and gradients as determined from nine different monitoring points and multiple observations over a 10-month period; (c) water quality sampling data; and (d) groundwater travel times determined from aquifer hydraulic properties and groundwater contours.
- The Zone of Contribution is not likely to alter too much or extend far into the project area in the future because: (1) the bedrock surface on-site affecting flow directions will still be there; and (2) the current cone of depression for the NMWD wells is oriented along the axis of Lagunitas Creek. Any future expansion of the cone due to increased pumping will likely extend along the creek alluvium, rather than laterally in the direction of the project site.
- The California Department of Health Services defines a Microbial/Direct Chemical Contamination Zone as "the surface area overlying the portion of the aquifer that contributes to the well within a two-year time-of-travel." The two-year time-of-travel criterion is used because existing research indicates that bacteria and viruses survive less than two years in soil and groundwater.

Appellants' Consultant, FCE (2/10/2002)

- The estimated groundwater travel time between the site and Lagunitas Creek is one year, which is short enough for some viruses to survive the trip. This is especially worrisome if the viruses surface in the wetlands short of the creek and get swept in by surface water.

- Dr. Armstrong of FCE concedes that "[c]onsidering the topography and geology of the area" the water from the project site will not be captured by the NMWD wells under any circumstance.

Applicant's Consultant, Questa (3/5/2002)

- It's highly unlikely to expect viruses to arrive at Lagunitas Creek. Viral contamination consideration has been built into the existing stream/water well setback criterion for leachfields. Marin County and most of the US require a 100 feet horizontal setback from streams to protect against, among other things, lateral migration of pathogens into the water bodies. The proposed leachfield systems are located approximately 500 feet from Lagunitas Creek.

Applicant's Consultant, Questa (4/8/2002)

- The Chief Hydrogeologist with the California Department of Water Resources, Carl Hauge, has concurred with the design and execution of the hydrogeologic investigation to study travel time of groundwater to NMWD wells.

Third Party Peer Reviewer, PSOMAS

- PSOMAS concluded, after having reviewed all correspondence up to March 5, 2002, that "our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices."

CCC

- The information in the local record supports the County's determination that except for the far eastern corner (area around Leachfield 7), the project site essentially lies outside the Zone of Contribution to the NMWD wells. In addition, due to the estimated travel time of 2.5 years, viral or bacterial concentration of any groundwater reaching the wells will most likely have attenuated to one of insignificance. The site complies with the Department of Health Services' Microbial/Direct Chemical Contamination Zone criterion of two-year time-of-travel. The estimated travel time and the wells' Zone of Contribution are not expected to change significantly due to the development.
- It was reasonable for the County to find that viral contamination to Lagunitas Creek is unlikely. The project site is set back horizontally more than 400 feet from the creek, compared to Marin County's stream setback requirement of 100 feet. It would not be appropriate to apply the DHS' Microbial/Direct Chemical Contamination Zone criterion to Lagunitas Creek because it is meant for the protection of drinking water supplies.

Issue #3: <u>Cumulative Impacts to Groundwater and Surface Water Quality</u>

Appellants' Consultant, FCE (1/28/2002)

- The FEIR and supplemental information do not provide any assessment of the potential impacts to water quality in Lagunitas Creek.
- A nitrate loading analysis, in accordance with guidelines established by the Marin County Environmental Health Service and based on an annual chemical-water mass balance, should be performed.

Applicant's Consultant, Questa (2/4/2002)

- The project actually will eliminate the existing agricultural non-point pollution sources and include provisions for control and treatment of 100% of storm runoff.
- Cumulative nutrient loading effects from properly sited/functioning septic systems, via shallow groundwater flow, are mitigated by the high rainfall conditions in Marin County combined with the vegetation uptake and soil denitrification provided by the wetland/riparian zone before reaching the Creek.
- There's 450 feet between the leach fields and the Creek.

Appellants' Consultant, FCE (2/10/2002)

- The nitrate loading analysis presented in the feasibility report considers whether the groundwater concentration of nitrate-nitrogen in certain target zones would exceed 10 mg/l of various scenarios of wastewater discharge. Lagunitas Creek was not one of the target zones considered. There needs to be an analysis of whether any nitrate would enter the creek because of the project and if it did what would be the impact.

Applicant's Consultant, Questa (3/5/2002)

- The project poses no potential nitrate impact on Lagunitas Creek because (1) it will only result in a net increase in nitrogen loading over existing conditions (with horses) of approximately 247 lb-N per year (507 lb-N overall), and (2) the 10+ acres of riparian area between the site and Lagunitas Creek can uptake and denitrify at least 1,310 lb-N per year (690 for vegetative uptake and 620 for soil denitrification).
- Comparing groundwater data from existing onsite and offsite wells shows that nitrate-nitrogen concentration decreases towards Lagunitas Creek.

Appellants' Consultant, FCE (3/18/2002)

- Questa failed to estimate nitrate loading using the most current and a higher estimated wastewater loading from the site. If the most up-to-date number were used, the computed nitrate-nitrogen concentration at the downgradient edge of the property would exceed 10 mg/L in an average year with 10% runoff.
- It was unrealistic to assume a complete mixing of a year's wastewater with all the groundwater recharged on the entire site within one average year in performing the nitrate loading analysis. Questa failed to provide any explanation on how this mixing can be achieved.
- A more thorough analysis of potential impacts to the NMWD wells should be conducted.

Applicant's Consultant, Questa (4/8/2002)

- There are several safety factors already built into the nitrate loading analysis:

1. The rainfall used in the water balance calculations was 33 in/year. Had 40 inches been used, as desired by some project opponents, the resultant nitrate-nitrogen concentration in the calculation would be lower by 15 to 20%.
2. The design storm for stormwater infiltration is the 100-yr, 24-hr storm event. This means that the annual site runoff post-development will be equal to or less than current conditions. Hence, the future runoff rate will likely be lower than the assumed rates of 5, 10, and 15% used in the nitrate loading analysis. This is corroborated by the HELP3 model suggested by FCE, which estimates the current runoff rate to be around 2.2%. The additional infiltrated rainwater entails more dilution and lower nitrate-nitrogen concentration.
3. Several of the affordable homes are designed to be only 2-bedroom units. However, they were all assumed to be 3-bedroom units in the nitrate loading analysis.
4. There's a very low likelihood of water supply well installation at the evaluation points in the nitrate analysis.
    - The nitrate loading analysis performed uses an annual chemical-water mass balance approach in accordance with established guidelines contained in Marin County Sewage Disposal Regulations.
    - The Chief Hydrogeologist with the California Department of Water Resources, Carl Hauge, has concurred with the design and execution of the hydrogeologic investigation to study travel time of groundwater to NMWD wells.

Third Party Peer Reviewer, PSOMAS

- PSOMAS concluded, after having reviewed all correspondence up to March 5, 2002, that "our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices."

CCC

- Staff disagrees with Questa that an additional safety factor had been incorporated in the nitrate loading calculations because all the affordable homes were assumed to have three bedrooms, instead of some having only two. According to the On-Site Sewage Disposal Feasibility Report, estimated wastewater flows for single family residences used in the nitrate loading analysis are set at 100 gpd/bedroom. There was no mention of basing each unit's overall flow on three bedrooms instead of two bedrooms even for those units with only two bedrooms. However, the County's approach is not reliant on this additional safety factor.
- The nitrate loading analysis contained in the feasibility report, as revised in the 4/5/2000 addendum, was performed using an annual chemical-water balance analysis. The methodology utilized was in accordance with criteria contained in Marin County Sewage Disposal Regulations. The requirements are to (1) ensure that groundwater at the nearest existing or potential location of water supply well not exceed 10 mg/L in nitrate-nitrogen, and (2) that the average groundwater nitrate-nitrogen concentration

over the geographical extent of the subdivision should not exceed 10 mg/L. The results show that, using the standard septic systems as proposed, the average nitrate-nitrogen concentration on-site would exceed 10 mg/L only when the estimated annual rainfall runoff rate is 10% or higher. The concentration at 15% runoff rate is estimated at 10.9 mg/L. At 5% runoff rate, however, the concentration is estimated at 9.64 mg/L. The derived concentration represents nitrate generated on-site and offsite contribution from the West Marin School. Because no water supply wells will be allowed on the project site, the information supports the County's determination that the estimated nitrate-nitrogen concentration does not present a problem. Furthermore, the actual rainfall runoff rate upon project completion is expected to be lower than 10% due to the stormwater BMPs' 100-year, 24-hour design storm. Conversely, this means the volume of rainwater infiltrated into the subsurface will increase to provide additional nitrate dilution. Therefore, the average concentration onsite will likely be lower than 10 mg/L and meeting the County's requirement.

- The County's determination is supported by the fact that the potential offsite water supply well location in the riparian/wetland area between the project site and Lagunitas Creek is 100 feet from the downgradient edge of the eastern part of the site. There, the estimated nitrate-nitrogen concentrations are all below 10 mg/L for the three projected runoff rates (5%, 10%, & 15%). Additional attenuation due to vegetation uptake and soil denitrification will most likely occur between this location and Lagunitas Creek as the creek is still more than 300 feet away.
- The information in the record, including information provided by the applicant's consultant and confirmed by the County's third party peer review, supports the County's determination that the cumulative nitrate impact on Lagunitas Creek will be insignificant for the following reasons:
  1. The 100-year, 24-hour design storm used for stormwater infiltration will ensure that the overall rainwater contribution to the subsurface will not decrease after development. The infiltrated rainwater will provide dilution for nitrate concentration.
  2. Cumulative nitrogen contribution from the post-development wastewater flow on the site's eastern portion represents roughly a 54% increase from the current nitrogen loading resulting from onsite horse grazing and the West Marin School. Previous monitoring using onsite and offsite wells showed the average onsite concentration to be 2.4 mg-N/L, compared to the average concentration of 0.3 mg-N/L for the four off-site wells. The decrease in concentration from onsite to offsite locations confirmed the natural nitrate attenuation capacity available in the subsurface.
  3. There are 10+ acres of wetland meadow and riparian woodland between the project site and Lagunitas Creek, representing an approximately 450-foot horizontal setback from the creek. This area will provide soil denitrification and vegetative uptake of nitrate. Questa is estimating a minimum of 1,310 lb per year nitrogen removal capacity for this area, more than enough to handle the predicted combined loading of 705 pounds from the site's eastern portion and the West Marin School.
  4. The post-development monitoring program to be implemented will ensure the minimization of offsite nitrate migration. Either the existing offsite monitoring

wells on the Coast Guard property will be used or monitoring at the downgradient edge of the site will be performed with nitrate action levels to be established for these property edge locations. Exceedance of these action levels would trigger implementation of the contingency plan. Contingency measures potentially include diversion of problematic wastewater flows to the reserve fields and/or the construction of pretreatment systems to improve the denitrification capacity and efficiency of the septic systems.

5. Prior to recordation of the final maps for the residential or visitor-serving uses, approval of the subdivision improvement agreement, or issuance of a grading permit, whichever occurs first, the County's Environmental Health Services Division will issue a letter confirming that the wastewater and stormwater systems' design would adequately address, among others, the potential for nitrate contamination of Lagunitas Creek. This letter has to include written documentation of compliance with County regulations and receive approval by the Executive Officer of the RWQCB.

Issue #4: <u>Stormwater Management</u>

Appellants' Consultant, FCE (1/28/2002)

- The proposed stormwater infiltration system, especially the western part, will be hydraulically overloaded due to high groundwater conditions at the site.
- FCE recommends that the drainage analysis be expanded to assess the condition of the downstream drainage and to recommend mitigation measures to prevent impacts (most notably erosion) from occurring if the onsite drainage systems are inadequate to contain runoff, as proposed.
- The FEIR does not assess pre- and post-project site-specific and cumulative impacts to the hydrology of Lagunitas Creek.

Applicant's Consultant, Questa (2/4/2002)

- The Williams Street area, where grass swales are included as an integral part of the drainage system, is designed to contain and percolate the stormwater very near the source of runoff, in order to most closely mimic the existing hydrology.
- The existing on-site runoff facilities are designed to handle runoff from the 100-yr, 24-hr storms. This is way above any normal stormwater control capacity required by the County. By controlling this amount of runoff, downslope offsite impacts due to runoff will be minimized. This ensures that there will be no increased runoff reaching the town or Lagunitas Creek.
- Because of this almost total containment of runoff from the site, this project actually will be beneficial to the creek and town in terms of NPS pollution.

Appellants' Consultant, FCE (3/18/2002)

- The hydraulic analysis performed by Questa only evaluated short-term drainage capacity of the specific infiltration trenches for the 24-hour design storm events. The analysis did not take into consideration the ability of the site to accommodate the runoff over the course of the year and what potential impacts these changes will have on the proposed wastewater systems.

- Stormwater from the West Marin School and Williams Apartments will be directed to the existing wetlands. FCE was unable to locate any drainage analysis that demonstrates that the existing wetlands have sufficient capacity to detain or retain this runoff.

Applicant's Consultant, Questa (4/8/2002)

- It was reasonable for the County to reject the Appellants' conclusions regarding hydraulic conductivity calculation. The USACE HELP3 model used by FCE actually supports Questa's hydraulic conductivity calculations. Using the lower K selected by FCE, the model would predict a depth to groundwater of approximately 2.5 feet at the end of April in a year receiving 46.5 inches of rain. However, Questa's test pits in April 1998 (the year with 60 inches of rain) yielded depths greater than 7 feet in the lower part of the site. This shows that the K used by FCE is much too low.
- The proposed drainage plan calls for runoff from the access road, parking areas, building downspouts, and other paved areas to be directed to grassed swales and infiltration trenches located in immediately adjacent areas, in order to retain as closely as possible the existing hydrologic regime. None of the swales or infiltration trenches will extend within 100 feet of any existing wetland.

Third Party Peer Reviewer, PSOMAS

- While storm flows greater than those generated in the 100-year, 24-hour storm events will produce some offsite runoff, this runoff, however, would not include the agricultural constituents contained in the current runoff. "In addition, runoff from the earlier stages (i.e., first flush) of events larger than the design event would be treated, and the project would result in no increase in post-development runoff volumes from the design event."
- PSOMAS concluded, after having reviewed all correspondence up to March 5, 2002, that "our peer review of these documents do substantiate the findings and responses of Questa. Their responses are backed up with appropriate and substantiated data and are based on current State and County design parameters and standard of care engineering practices."

CCC

- The information in the record, including the information provided by the applicant's consultant and confirmed by the County's third party peer review, supports the County's determination that the site has the capacity to absorb the combined loading of rainwater and wastewater. As stated above, the overall volume of rainwater infiltration to the subsurface is not expected to change significantly upon project completion due to the big design storm for the stormwater BMPs. As such, the groundwater mounding analysis performed by Questa using predevelopment groundwater data (data taken in April 1998 and March 2000, after higher-than-normal precipitations) does provide useful and realistic insights to the potential mounding conditions as a result of adding the wastewater flow, notwithstanding the lingering dispute over the validity of the hydraulic conductivity used in the calculations. Based on these results, the site's subsurface environment does seem to possess the capacity

to handle the combined loading from rainwater and wastewater. Hydraulic overloading on the western portion is therefore not expected.

- The information in the record, including the information provided by the applicant's consultant, supports the County's determination that there will be no significant adverse impact to the wetlands. The grass swales proposed onsite, especially on the western portion, are intended to induce rainwater infiltration near the source of the runoff and thus mimic existing hydrology. The infiltration locations, along with the fact that the overall infiltration volume will not vary significantly after development, provide an additional level of confidence that rainwater contribution to post-development groundwater levels underneath the leachfields will remain similar to those prior to development. In addition, because the infiltration trenches and grass swales will not extend within 100 feet of the wetlands and will induce infiltration close to the runoff source, impact to the wetlands will be minimal and insignificant.
- It was reasonable for the County to determine that, with the 100-year, 24-hour design storm for stormwater BMPs, post-development runoff leaving the site will not increase and downslope impacts due to runoff will be minimized and insignificant. This is because the 100-year, 24-hour design storm, when implemented appropriately, will enable the stormwater BMPs to capture and treat runoff generated from exceptionally large storm events. In addition, to promote a long design life of the infiltration trenches and prevent clogging, the County has required that surface runoff be filtered prior to reaching the trenches.
- The local record supports the County's decision to reject the Appellants' conclusions regarding groundwater mounding and/or other hydraulic analyses. FCE did not intend their analysis using the USACOE model, HELP3, to closely mimic project site's conditions. As such, it is inappropriate to infer the inappropriateness of FCE's hydraulic conductivity analysis based on the model results and Questa's field observations in 1998. By the same token, it is not reasonable to infer from the model a more significant groundwater mounding than that estimated by Questa. Because the model's outcome can be greatly influenced by the input parameters, FCE's use of HELP3 fails to demonstrate the need to redo the groundwater mounding and/or other hydraulic analyses.
- The County's permit does require that, prior to approval of the subdivision improvement agreement or issuance of a grading permit, a plan for long-term protection of the wetlands to be submitted and approved by the Executive Officer of the RWQCB. The plan will include measures to monitor for and preclude adverse impacts to the wetlands and contingency measures to be taken in the event that the wetlands are adversely impacted by the development.
- The County's permit does require that prior to recordation of the final maps for the residential or visitor-serving uses, approval of the subdivision improvement agreement, or issuance of a grading permit, whichever occurs first, the County's Environmental Health Services Division will issue a letter confirming that the wastewater and stormwater systems' design would adequately address, among others, the adequacy of the site to accept post-development stormwater runoff, and the adequacy of the design to adequately handle both the wastewater and stormwater runoff. This letter has to include written documentation of compliance with County regulations and receive approval by the Executive Officer of the RWQCB.